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THE RELATION OF THE PATHOLOGY OF THYREOID DISEASE TO THE CLINICAL FINDINGS.[1]

By C. STANTON HICKS, M.Sc., M.B., Ch.B. (N.Z.), Ph.D. (Cantab.), F.I.C. (Lond).,
Professor of Human Physiology and Pharmacology, University of Adelaide.

THE physician has differentiated symptomatic goître from conditions simulating it. The surgeon has shown that removal of portion of the thyreoid alleviates symptoms. The pathologist has shown that the morphology of the thyreoid gland in exophthalmic goître is that of an over functioning organ. The physiologist had shown experimentally that stimulation of the gland to over function produces signs of "exophthalmic" goître in animals and the chemist has isolated from the gland a pure substance—thyroxin—which produces essentially the same changes in animals.

Pathological difficulties arise from the fact that apart from tumours and inflammations the histological changes met with represent varying degrees of progressive or regressive stages in physiological function and are consequently difficult to evaluate. Add to this the disagreements between clinicians concerning the grouping of clinical syndromes and the reason for the chaos of classification becomes clear. Before the pathologist can get any clear idea of the various thyreoid states, he must study not only a large number of glands, but he must never be content with a block of gland selected at random from which to cut his sections. Each thyreoid follicle is a working unit in itself and a pathological assessment can be made only by studying a sufficiently large proportion of a gland to enable a conclusion as to the whole being made.

Estimates based on histopathological evidence are more correct than might be anticipated from what has been said concerning the variable histological picture of a normal gland, because the body responds only to wide variations in functional activity of the thyreoid and in such cases the morphological change is definite. Excessive physiological thyreoid depression or activity is likely to be missed unless a large number of sections is examined, while a relatively small increase in output extending over a long period, especially when the functional increase is associated with formation of new follicles, may be difficult to detect histologically.

Notwithstanding difficulties arising from inaccuracies in clinical diagnoses and in post-operative histories, difficulties in getting sufficient normal and pathological glands for comparison and arising from the enormous labour involved in examining many sections from a large number of areas of the gland, an experienced pathologist can demonstrate morphological evidence of over function in 90% to 95% of cases in which there is sufficient evidence in the case histories to warrant a diagnosis of hyperthyreoidism (L. B. Wilson). Normal variations in the proportion of actively secreting tissue range from an amount evident to the naked eye examination of a cut surface of gland to such as is evident only microscopically. The follicles in the opaque area contain a liquid secretion quite different from the colloid in the other follicles.

Scott Williamson goes on to differentiate three stages of this active secretory phase. Since this is based upon a morphological interpretation from which I differ strongly, I shall not do more than mention it.

In a normal gland, secreting tissue always has a focal distribution. The active principle—thyroxin—or a chemical relation of it, is present in larger quantity in colloid, not in the fluid secretion. It reaches the blood by the capillaries in the form of a globulin aggregate, as shown by the work of Carlson and Hektoen and independently by Hicks.

Exophthalmic Goître.

Morphological Changes.

The morphological changes in exophthalmic goître may be summarized as follows:

1. Early stages are characterized by moderately raised metabolism and usually moderate exophthalmos and thyreoid enlargement. The parenchymal cells show marked hypertrophy and moderate hyperplasia. The gland shows diffuse hyperæmia.
2. Advanced exophthalmic goître occurs with high basal metabolic rate and marked exophthalmos and a well marked nervous syndrome. Usually there is extensive enlargement of the thyreoid and there are advanced hypertophy and hyperplasia of the cells of follicles which contain little, if any, colloid. There is diffuse hyperæmia.
3. Late exophthalmic goître occurs with high, sometimes declining, basal metabolic rate, exophthalmos and distinct nervous syndrome. Gland changes occur similar to those in early stages of the disease, but definite evidence of colloid storage is present. Hyperæmia is less than in the two previous stages.

The parenchymal cell changes are almost always diffuse and except for occasional encapsulated adenomas the gland is rarely nodular.

Toxic Adenoma.

Plummer and independently Berry have segregated thyreoid hyperfunction cases into two clinical types. The former, owing to the vast amount of material at his disposal, has been able to analyse the cases with more definite results. Sir James Berry's cases were segregated clinically, but he could give no pathological explanation as to the basis of his selection. Scott Williamson, working on the material from Sir James's clinics, soon became aware that there was a definite underlying pathology and it was my pleasure and honour to work with Williamson on this material in 1924.

Morphological Changes.

The morphological changes are: (i) hyperæmia, (ii) parenchymal cell hypertrophy, (iii) parenchymal cell hyperplasia, (iv) new follicle formation.

[1] Read at a meeting of the South Australian Branch of the British Medical Association on April 26, 1929.

1. Hyperæmia is obvious grossly and microscopically and largely due to increase in size of arterioles and capillaries. The larger vessels are often not enlarged commensurately with the glandular increase in size.

2. An increase in size of individual cells is always present in hyperthyreoidism. It is to be differentiated from swollen cells lining soft cysts or papillary ingrowths into the same. Hypertrophy is indubitable evidence that a cell has over worked.

3. Hyperplasia is sometimes confused with hypertrophy, it means increase in number of the cells of a given follicle. Compared with normal gland follicles the increase in the number of lining cells is very obvious. Hyperplasia is an even less equivocal evidence of overaction.

4. New follicles formed within encapsulated areas are true adenomas, but there is ample evidence in favour of diffuse development of new follicles from so-called Wolfer's rests in the walls of atrophied follicles, that is, a regeneration process.

It is to be emphasized that the cells in these cases are not themselves pathological; they are actively responding to increase in demand for thyreoid function. Notwithstanding this statement, the secretion produced by these overactive cells may not be normal, either on account of the rapidity of the production or of the insufficiency of the materials available to the thyreoid from which to synthesize the complete secretion. Evidence of this will be produced later. In the examination of a normal gland it is to be clearly understood that the appearances seen are a mean of two phases in follicular activity. The significance of these phases was first pointed out in 1911 by David Marine who showed that the actively secreting follicles could be converted into resting colloid containing follicles by the administration of iodine and that partial removal of the thyreoid led to hypertrophy and hyperplasia of the remainder.

In a normal human gland one sees by examination under a low power binocular microscope colloid containing follicles separated by little interstitial tissue. The colloid is not fluid and the cut surface remains dry. This represents the colloid storage phase of thyreoid activity. Interspersed throughout this tissue may be seen, especially under strong indirect illumination, opaque patches or streaks. These are the active secretory areas and on being sectioned and examined under higher power, they show the characteristic appearance. This may be evidenced by appearances similar to those seen in the thyreoid of true exophthalmic goître, but there is a preponderating amount of parenchymal hypertrophy and hyperplasia in follicles in which colloid has been present, but which is disappearing. True colloid storage of follicles lined by typical flattened cells may also be present, but in all cases the colloid stains less darkly than in normal glands or those of the next group to be considered.

The gross appearance is one of a diffuse colloid goître without any evidence of new follicle formation. The nodular appearance is due to increase of and contraction of perilobular connective tissue.

Scott Williamson agrees with this classification in the main. He ascribes the symptoms to arteriosclerotic change responsible for the fibrosis, which then causes the trapped secretion to reach the organism by an abnormal route. Wilson, however, includes other less clearly demarcated parenchymal variations which can only be distinguished by a pathologist having a peculiarly wide acquaintance with thyreoid histology. With Dr. L. B. Wilson at the Mayo Clinic I had opportunity to examine the microscopical material from Plummer's cases and I will cite the morphology of these cases first. Plummer had segregated cases of thyreoid hyperfunction in which the symptoms were in the main of slow development, or if rapid in their development of hyperfunction, there had been a long non-symptomatic period of thyreoid enlargement. The basal metabolism is increased often as much as in exophthalmic goître, but there are no ocular signs, nor is there the typical nervous syndrome.

So often was this type associated with nodular thyreoids that Plummer designated this type as "toxic adenoma." Dr. Wilson had examined such case material since 1908, but until Boothby introduced the basal metabolic rate measurement as a clinical guide, the symptomatology provided an insufficiently definite basis for classification. He has since then been able to study two groups of Plummer's so-called "toxic adenoma": (i) Those with a high basal metabolic rate of more than + 20%, (ii) those with a low basal metabolic rate not exceeding + 10%. Both types have nodular thyreoids, but the former shows the symptoms of hyperthyreoidism without exophthalmos; the latter does not.

In the first group, 90% of thyreoids show distinct increase in follicular cell activity. These include new follicle formation, either diffuse (adenomatosis) or in encapsulated areas (adenoma).

Compared with the thyreoid of ordinary exophthalmic goître, this class of gland shows parenchymal hypertrophy and hyperplasia equivalent to only moderate types of exophthalmic goître, while in addition is the evidence of extensive colloid storage previously mentioned. Commonly one sees follicles of large size filled with colloid which in places is staining very lightly, and is here in contact with hypertrophic and even hyperplastic cells lining that section of the follicle wall. Elsewhere the lining cells are typically flattened.

In the adenomatosis subgroup with diffuse new follicle formation there is not the colloid formation found in the previous group, while where definite encapsulation is present there may be dense stored colloid. This subgroup is more extensive than the preceding.

In the second group of nodular non-exophthalmic goîtres in which the basal metabolic rate does not

exceed the normal by 10% with the clinical diagnosis of adenoma, there is no evidence of even moderate hyperplasia. The glands fall into three subgroups paralleling those of the previous active type, but do not show the cellular activity there found.

Secondary Graves's Disease.

The typical symptoms of Graves's disease may suddenly develope in a case of long standing thyreotoxicosis. The long history of loss of weight and breathlessness is now crowned by the typical nervous syndrome. Pathologically the gland shows the same appearance as in the earlier condition, but the fine perifollicular fibrosis is more extensive and there is more active hyperplasia in the specific areas.

Having begun with a discussion of the differentiation of true exophthalmic goître from so-called "toxic adenoma" or thyreotoxicosis, it is necessary before passing to the other pathological states to state that the secretion from the thyreoid in exophthalmic goître is not only in excess of normal, but is also different in kind. The evidence is of two types: (i) thyroxin administered to the human subject produces all the signs and symptoms of thyreotoxicosis, that is, of hyperthyreoidism, but without the nervous syndrome and exophthalmos of true Graves's disease; (ii) Plummer found that the administration of iodine to patients with exophthalmic goître produced a remarkable and rapid alleviation of the nervous symptoms, while in the cases of so-called "toxic adenoma" there was no beneficial change. There is therefore dysfunction in the former condition. Iodine administration produces no further change in symptoms after about the tenth day and this is the time that operation is performed at the Mayo Clinic. Not only are the general effects of inestimable value, but the gland itself after iodine therapy is easier to manipulate on account of diminished vascularity. In the course of conversation Means showed me evidence that continued administration of iodine to patients with true exophthalmic goître not only removed the toxic symptoms and lowered the basal metabolism in some cases to normal, but continued administration led to a rise in the metabolic rate to its previous figure, but without renewal of the nervous syndrome. This is a significant fact, especially as the rate of fall of metabolism is the same as that of the subsequent rise.

Simple Goître.

A reference to simple goître is necessary in order to clear up the pathology of a condition often wrongly diagnosed, namely, adolescent goître. Simple goître developes when the iodine content of the thyreoid falls below 0·1%. Hypertrophy and hyperplasia follow and the gland ultimately becomes composed of colloid-filled resting follicles. Frequently the development is irregular, in which cases the result is adenomatous—*struma nodosa*—otherwise the alteration is diffuse, involving the whole gland-diffuse colloid goître. In the latter the follicles are filled with firm colloid, the lining follicular epithelium being cubical or even flattened. The former shows much the same type of follicle, but large portions of the gland are obliterated by the effects of the adenomatous growths which undergo degeneration at their centres, giving rise to cyst formation, hæmorrhage and calcification. Moreover, some 90% of thyreoid carcinomata originate in these adenomata (Marine).

The age point of incidence for diffuse or nodular simple goître is between eighteen and twenty years, females being especially affected. The gland may be as large as the two fists, enlarged arteries palpable to the fingers and thrill and bruit may be present. Add to this a nervous and excitable temperament and some loss of weight and a diagnosis of hyperthyreoidism is easy. There is, however, no exophthalmos and the basal metabolic rate may even be below normal by 8% to 20%. This is an apt reminder of the unfailing attention to signs and symptoms that characterized the old physicians, and enabled Graves to isolate the condition that is associated with his name.

ORGANIZATION OF CANCER RESEARCH AND TREATMENT.[1]

By HENRY GEORGE CHAPMAN, M.D., Ch.M.
From the University of Sydney.

ORGANIZED efforts for the study of the problems of cancer have now been in operation for rather more than fifty years. These organized efforts have increased in number and in intensity as a consequence of a growing public interest in the problem. This public interest arises from the popular belief that cancer is occurring more frequently than it did in the past; at the same time knowledge of the remarkable progress made in many fields of medicine, for example, in the control of malaria and tropical diseases, is becoming more widely known. The feeling is growing that the progress of cancer can be stayed provided a sufficiently great effort be made.

The organization begun in Sydney in 1922 by the University has been amplified from time to time as the result of experience. At the present time the controlling body is the Senate of the University of Sydney which is responsible for all the acts of the cancer organization. The Senate acts upon the advice of the Cancer Research Committee which is a committee of the Senate and is constituted of members of the Senate, of lay representatives and of members of the University staff. The Cancer Research Committee has formed three principal subcommittees, the finance subcommittee, the cancer executive, composed of the Vice-Chan-

[1] Read at a meeting of the New South Wales Branch of the British Medical Association in conjunction with the Section for the Study of Cancer and the Section of Surgery on May 30, 1929.

cellor and the Directors of Cancer Research and Cancer Treatment, and the Scientific Advisory Committee. The Scientific Advisory Committee delegates certain of its functions to three subcommittees, namely the Treatment Advisory Subcommittee, the Research Advisory Subcommittee and the Veterinary Advisory Subcommittee.

The work of the organization is carried out by weekly meetings of the Cancer Executive and by monthly meetings of the other committees and subcommittees.

It is now abundantly evident that the cancer problem is not readily capable of solution. Although an immense amount of information has been gained in respect to the incidence, diagnosis, nature and treatment of the cancerous process, it is doubtful whether the information so far obtained has greatly extended the boundaries of our knowledge of cancer during the last half century. Although cancerous material may be obtained by the application of suitable chemical irritants and although cancer may be transmitted from one animal to another, there yet remains doubt as to the nature of the tumour cell. Many regard the growth as an aberrant multiplication of the cells of some normal body tissue. In other words they trace back the parentage of the cells of the new growth to cells which would at one time have been regarded as perfectly normal cells lying in some situation in the healthy body. Observations made on new growths in the earlier stages of their development seem to show that the new growth developes not from a single cell the multiplications of which become aberrant, but from a series of cells situated usually in a proximity of microscopic dimensions, although occasionally these cells appear to lie several centimetres apart. Evidence undoubtedly exists that in some new growths the cells which undergo malignant multiplication, are separated by groups of cells which do not exhibit this change.

The cancerous change is usually determined by its morphological appearance. In the early stages microscopical examination may be necessary, but ultimately the macroscopical characters and the biological history of its extension and distribution reveal its nature. The nature and arrangement of the cellular elements in the new growth are the essential factors used at present for its recognition.

The problems of cancer are usually considered to embrace the study of the incidence, nature, diagnosis and treatment of new growths. No organization so far brought into existence has been on such a scale as to embrace a comprehensive study in each of these fields. Usually each organization carries on such studies as are suggested by its environment. Of practical importance to our organization in Sydney are the problems of research and treatment with which we are immediately confronted. As is well known our efforts for the last five years have been concentrated on the study and use of certain forms of radiant energy. Our activities in this direction are not so well known, but that a brief summary is desirable.

In 1922 the Scientific Advisory Committee, then known as the Committee of Direction, suggested to the Senate that a team of investigators should be brought together to study radiations and their therapeutic action. The committee was impressed by the fact that radiations either from X ray tubes or from radium were sometimes effective in bringing about atrophy of malignant tissues. This effect appeared to be haphazard. Apparently similar radiations to an apparently similar tumour were at times effective and on other occasions without action. The committee considered that a systematic study should be made of the wave lengths of the various radiations used for therapeutic purposes, together with an estimation of the quantity of energy obtained for each wave length of radiation. On the other hand, investigation would be begun into the atomic construction of malignant and healthy tissues. This orientation of the line of research was largely due to the valuable advice of our late colleague in cancer research, the late Professor J. A. Pollock.

It was evident to the committee that the effect of any radiation must depend on the chemical composition of the tissue on which the radiation fell. Studies were begun shortly afterwards by Dr. W. Moppett, who showed much originality in making use of well-known physical methods in studying the action of homogeneous beams of X rays on the chorio-allantoic membrane of the developing chick embryo. This membrane is so thin that observations can readily be made on the effect of radiations of individual wave length without the complication of the presence of additional wave lengths produced by the passage of the homogeneous beams through the depth of the tissues.

Dr. Moppett observed that radiations of certain wave lengths were much more effective in producing atrophy or in some cases cellular multiplication than radiations of intermediate wave lengths. The amount of energy needed to produce these effects was found to be extraordinarily small. The application of radiations of an order of magnitude similar to that of the radiations from the flame of a wooden match falling upon a surface ten metres distant, produced complete atrophy of the chorio-allantoic membrane in ninety-six hours when the radiations were applied for approximately thirty minutes.

In 1926 a suggestion was made by Major E. Booth that the wave lengths noticed as active by Dr. Moppett appeared to be the wave length of the *K* discontinuities of certain heavy metals, which suggestion has been found to be most fruitful. Chemical investigations of the egg by Mr. W. B. S. Bishop and Miss W. R. Mankin have shown the presence of lead, uranium and molybdenum in the egg, these metals being those of which the *K* discontinuity is a wave length found especially active by Dr. Moppett. Studies by Mr. W. H. Love showed that the amounts of lead in eggs quantitatively accounted for the absorption of the radiations applied to the egg and recently Mr. Love has been able to show

that the chorio-allantoic membrane itself contains uranium and lead and that these metals absorb very much greater amounts of energy of particular wave lengths than of other wave lengths. In other words Mr. Love has been able to show by physical means that selective absorption of X radiation is a characteristic of living tissue. Experiments are now being undertaken to ascertain in what way the radiation of the heavy metals brings about the biological change. These investigations aim at determining a change in the catalytic action of the metal in altering the velocity in some of the autolytic chemical reactions in the tissues.

Tonight attention will be focused on the further organization of work to be undertaken. Treatment controlled by research is being given to numerous affected persons. It will be evident that the relations of our cancer study group with these persons should not cease with the administration of the treatment. An attempt should be made to gain more information of these patients. In the first place the question arises, who are the persons in the community who are the subject of cancerous processes? These persons are known to the medical profession. The question has arisen as to whether notification to some health authority is desirable. Many objections have been made against such a proposal, but it will be obvious that no reliable information as to the frequency of cases within the community will be available until notification of all cases, whether compulsory or otherwise, is brought about. It is now well understood that attempts to determine the relative frequencies of the occurrence of cancer in different countries, in persons of different ages in the same country, in persons following various occupations, from a study of the mortality rates is more likely to be misleading than to give correct information. There has been great improvement in setting forth the data of vital statistics, but this improvement has made it clear that it is impossible to ascertain morbidity rates from mortality rates. By a morbidity rate is meant the number of persons out of a group affected by a disease or circumstance either at the one time or during some limited period of time. It is therefore evident that it is necessary to have a list of the persons found affected with a cancerous process. It would seem desirable that steps should be taken to obtain such a list for New South Wales and indeed for Australia. With the aid of the medical profession it should not be difficult to obtain a card catalogue of the men, women and children who are the subjects of malignant disease. Even if it be not possible to make this list complete, it would appear helpful if such a catalogue existed in respect to the patients treated by those who are willing to assist in the study of the cancer problem.

Much evidence has accumulated to show that all persons in the community are not equally liable to cancerous processes. It is well known, for example, that individuals of certain families appear to escape the disease, whilst members of other families are frequently affected. Much of the evidence which makes it apparent that such differences do occur, is of an incomplete character. Few attempts have been made to accumulate such evidence on a sufficiently comprehensive scale as to attain some degree of accuracy. The question may be asked whether it be not desirable to prepare a card for distribution among the medical profession on which the medical practitioner might record information which might serve for a more intensive study of the characters and circumstances of the persons suffering from cancer. Such a card would record the person's name, address, age, occupation and employer, if any. In the next place it might deal with genetic descent; not only would it record the name of the parents, together with information for their identification, but it would record uncles, aunts, first cousins and other blood relatives and where knowledge of grandparents, great uncles and great aunts is available, this might be recorded. To put it briefly, such information would be given as would enable the genealogical tree to be constructed. Where children or grandchildren exist, genetic connexions would be followed to the younger generations. Attention might also be given to the racial aspect of the genetic tree. Where information exists as to the state of health or cause of death of any of these persons, the card could be arranged so that a record could be made. In the second place the card should record the life history of the individual from the occupational point of view. Many records of this nature have now been made in connexion with industrial diseases. Although it may be urged that it may be a matter of great difficulty to record this information and although its accuracy may not be considerable, yet experience in obtaining this information shows that it is much more practicable than might at first be thought to obtain fairly accurate accounts of industrial histories. It will be known to many that abundant evidence exists that cancer is much more common among persons following some occupations. A study of vital statistics shows most extraordinary variations in the way in which cancer affects persons of different occupations. For many years persons following various occupations have appeared to die five or six times more frequently from cancer than persons following other occupations. In the third place information should be recorded as to the environment of the person. This information should be geographical, topographical and sociological. Time will not permit me to analyse this further, but information as to altitude, humidity and rainfall might indicate what is desirable. Lastly the cards should record the physiological and morphological characters of the individual. Information should be available as to the nutrition of the person, to what extent the specific dynamic action of protein affects the nutrition, to what extent various endocrine glands have functioned, as to the activity of the consumption of oxygen, as to normal heart rate and so forth.

It will be obvious to you that the compilation of such a record of the individual patient lies beyond

the domain of the medical attendant of the patient. For the identification of the patient the medical attendant is responsible. The medical attendant might furnish some part of the information and indeed it is desirable that this should be done, since the medical attendant will not infrequently have some first-hand knowledge which may be incorporated in the statement. Much of the information would need to be obtained by persons who would be trained to elicit what is needed. It appears to me worthy of consideration that a committee be formed to take charge of this study of the incidence of cancer. Personally I am inclined to think that from a study of this information, especially the genealogy of the patient affected by cancer, that it will be possible to gain an insight into the problem of the prevention of cancer. If it be true that cancer is very rarely found in certain families and if it be equally true that cancer occurs with a high frequency in other families, it ought not to be difficult to correlate the absence of the disease with certain physiological or biochemical or morphological characters and to correlate the absence of the disease with certain other characteristics. From such information it should not be difficult to institute measures which would militate against the occurrence of cancer. In this connexion I might mention that I already hold records of several families of over one hundred individuals in whom not a trace of cancerous process has ever been detected, whilst in the case of three other families nearly 40% of the individuals have been affected by cancer. To sum up in this connexion I would suggest a controlling committee to prepare a card and advise as to the analysis thereof and two persons to record and classify the information obtained. The cancer secretariat of the Federal Health Department might be willing to cooperate. During the last ten years Dr. Cumpston has given earnest consideration to the question of obtaining a survey of the physiological and morphological characters of some group in the community not the subject of any morbid agent with the object of defining more exactly the range of variation within which the limits of health may be found.

Information of the kind which has been discussed, is obviously most easily obtained when the patients are congregated together. Such information is thus most easily obtained at hospitals. However, this information is not only the result of recording the answers of the patient, but is the result of direct observation by trained persons. Its accumulation needs not only intelligent examination and cross-examination, but technical, clinical and medical inspection and experiment. Facilities available in hospitals for this work are insufficient. Even in teaching hospitals in Australia arrangements have not yet been made for the thorough examination of individual patients. Rightly the authorities in hospitals have recognized that their inadequate funds should be used in the first place for the healing of the sick patient. An organization for the study of cancer requires laboratories to carry out that systematic examination of the patient which will supply that more precise information, the need for which has already become so evident. These laboratories will not only be concerned with obtaining the information which will enable us to set out more clearly the physiological characteristics of the cancerous subject, but will provide means for assisting diagnosis, for obtaining data to indicate the treatment to be adopted and for experimental research.

In dealing with diagnosis a cancer organization is concerned with a classification of new growths. It endeavours to reach accuracy of classification by keeping a museum of specimens, macroscopic and microscopic. It would appear desirable to keep all growths that can be obtained from persons whose characters are being studied. In many cases this may not be possible. In many cases, especially in connexion with radiation, a chemical analysis of growths is necessary to obtain better information of what follows the application of radiations. In many cases microscopical sections of the new growths can be kept for future study. In this direction consideration might be given to an attempt to determine in what particular cells and at what time the cancerous process started in each individual. While it is easy to speak of the cancerous process, it is not always easy to determine that it has commenced. Many attempts have been made to discover some biochemical or serological test which might indicate the occurrence of cancerous processes in the body. The preparation of a classification of cancerous processes which can be used to set out the morbidity of cancer or the elucidation of the results of treatments, should be commenced at an early date by our cancer organization. Such a classification must extend farther than a mere morphological statement of the constituents of the tumour. It must provide some indication of the characteristics of the living tumour in the patient.

The organization of treatment of cancerous patients forms the most important part of our organization. Our aim has been not only to make the patient better, but also to keep a record of the treatment and especially to bring about more efficient terms of treatment. In this direction our activities are mainly concerned with the use of the radiations from radium and X ray therapy tubes. So far we have done little beyond applying the radiations and keeping as good a record as possible of what happens to the patient. It has been felt for some time that the correlation of the results of these records should be undertaken. In this connexion the practical problem of bringing information together is of first importance. I would advocate earnest consideration of the attempt to record on sheets of brief paper as much of the information as can be used for comparative purposes. In such records the data of each individual patient run horizontally, whilst the data about each circumstance or condition in respect to many patients are found in the vertical columns. It would seem, however, that such record should begin as

soon as a classification of tumours is available. The directions in which therapeutic study might be extended, are indeed numerous, but I would suggest for consideration a study of the question as to whether efficient radiation of a tumour leading to its absorption, affects the growth of other tumours in the same individual not subjected to an efficient bombardment of radiations. Such a study is not only clinical but experimental. It would not be difficult perhaps to obtain serological evidence of the production of antibodies as a consequence of the absorption of the tumour.

A PLAN OF CAMPAIGN AGAINST CANCER.[1]

By H. M. MORAN, M.B. (Sydney), F.R.C.S. (Edinburgh),
Honorary Consultant for Radium, Royal Prince Alfred Hospital; Honorary Surgeon, Lewisham Hospital.

A PLAN OF CAMPAIGN AGAINST CANCER.

1. *A Central Cancer Committee* (lay and medical).
   Functions:
   - (*a*) To collect money and control its disbursal.
   - (*b*) To provide facilities for research.
   - (*c*) To provide facilities for treatment.
   - (*d*) To direct propaganda and give instruction in prophylaxis.
   - (*e*) To collect statistics.
   - (*f*) To supply information and advice.
   - (*g*) To coordinate all cancer activities.
2. *Centres for Diagnosis and Treatment.*
   Functions:
   - (*a*) To diagnose and treat cancer; medical jury system with surgeon, pathologist, deep X ray specialist and radium specialist, having available biochemist, physicist and specialists in ear, nose and throat, eye, gynæcology *et cetera*.
   - (*b*) To keep records and arrange a "follow up" system.
   - (*c*) To publish scientific reports of the work done.
   - (*d*) To train nurses as technicians.
   - (*e*) To create a pathological museum for educational purposes.
3. *Consultoria.*
   Posts of diagnosis and selection, staffed by a jury of three (surgeon, pathologist and physio-therapist).
   Function: To diagnose cancer and to select the patients suitable for special forms of treatment.
4. *The Medical Man.*
   Function: To detect malignant disease at the earliest moment.

THE scheme here outlined appears to me one suitable for the Australian States. It is based on the military conception of a headquarters staff which is the central cancer committee, of base hospitals which are the centres for diagnosis and treatment, and of ambulances which are the consultoria in outlying suburbs and distant country towns. The medical practitioner who is the officer of the front line, is a unit of outstanding importance, for not infrequently the fate of the cancer patient is in the hands of the first doctor consulted. The aim of treatment is to prevent death from cancer and when this cannot be achieved, to prolong life and alleviate suffering due to the disease. Its domain is not entirely separate from that of cancer research. There is a certain amount of overlapping and the work of cancer research and that of cancer treatment should be carefully coordinated. No intelligent medical man can carry out treatment without making research and new paths of investigation for the researcher may be opened up by suggestions from the therapist. The central cancer committee should include both lay and professional members, the former being chosen from men experienced in finance and possessed of organizing ability. Public health officers, scientists and medical specialists of various kinds are valuable committee men. The chief functions of the central cancer committee are tabulated above. No serious effort at propaganda has yet been made in Australia and it is lamentable that patients still come late for treatment, partly from ignorance and partly from fear. The work of propaganda as carried out in New York is elaborate, expensive and perhaps excessive. In some instances the methods appear brutal. The message to the public should be one of hope and great care should be taken to avoid creating a cancer scare. It can be truthfully proclaimed that cancer is at first always a local disease and that localized cancer is curable. Education of the public is not the complete solution of the cancer problem, but it will enable us to make better use of the imperfect means at present available. But any plan to educate the public would be futile if we failed to awaken the medical profession to the necessity for the early detection of cancer, especially by biopsies. The early taking of a snipping has been too much neglected in the country from a fear of causing harm.

The task of finding medical lecturers may not be easy, but Government medical officers and retired practitioners can surely be found in sufficient numbers to form a nucleus. The bringing of medical lecturers from other States might be worth consideration.

The collection of statistics is a most important activity. Dr. Chapman has already touched on the need here for some work on cancer and genetics. The use of a form on the lines suggested by him would supply information of the first importance.

There is a limited scope for instruction in prophylaxis. For example, the influence of aniline dyes in the causation of bladder neoplasm could be taught and above all the evil effect of the ultra-violet component of light upon certain types of skins.

The centres for diagnosis and treatment should be directed on the jury system. By this means a better balance in treatment is obtained and more efficient cooperation obtained between surgeon and physio-therapist. A surgeon, a radium therapist, a deep X ray therapist and a pathologist should form the quorum of this body and they should be in a position to call on a biochemist, a physicist and the various consultants in special departments.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association in conjunction with the Section for Cancer Research and the Section of Surgery on April 30, 1929.

The pathological side should be strongly developed, for not only does the histological picture supply a key to the diagnosis, but it may indicate the treatment to be preferred. For example, an adeno-carcinoma of the uterus is essentially a surgical cancer. The dosage and technique of radium treatment will be different according to whether we are dealing with a basal celled or a squamous carcinoma.

The keeping of adequate records is laborious and expensive, but none the less an essential work. We have in this country, chiefly from lack of funds, no efficient follow up system. With the assistance of a cancer secretariat in the Federal Government there is hope of this being overcome.

By the training of qualified nurses in the techni- a number of valuable assistants. Here in Sydney a cal side of radio-therapy we should make available course of instruction is at present being drawn up by the Director of Treatment, Dr. Sandes.

There is at present nothing resembling consultoria in this country, yet it would be difficult to exaggerate their importance. These are posts of diagnosis which should be situated throughout the State, and staffed by a surgeon, a pathologist and a physiotherapist. The suspected cancer patients are seen and if possible a pathological diagnosis made. Where cure or relief is possible by radiation methods, the patient would be sent to the nearest centre for treatment. The medical members of the consultoria would need to be *au courant* with the modern treatment of cancer and to know the indications and contraindications for radiation. By this means not only will suitable patients be sent for treatment at an early stage, but it will be possible to avoid the unnecessary transfer of hopeless sufferers. A close liaison should exist between these outposts and the treatment centre, so that in the course of time these ambulances would themselves become base hospitals equipped with all that is necessary for efficient surgery and radio-therapy.

The medical practitioner in turn would be brought into close relation with the consultoria and would be quickened in his zeal to spy out the first evidence of malignant disease and educated to know the appropriate treatment. In America it was recently shown that of all sufferers from cancer of the uterus 14% were not examined vaginally when they first presented themselves to their medical advisers complaining of symptoms from this disease and in another high percentage of cases the patients were examined haphazardly and insufficiently. It may be too much to expect a practitioner to be able to give a competent opinion on a patient suffering from symptoms suggestive of early neoplasm, but with the existence of consultoria his task would be rendered easy and his duty made clearer. The educated patient would soon learn to distrust the attendant who was at no pains to exclude the existence of cancer.

The problem of cancer is only one of many in medicine, but it is none the less of national importance. If we are to achieve any success in our campaign against the scourge, we must have the loyal assistance of every member of the profession. A policy of idle criticism or the adoption of an attitude of *laisser aller* is unworthy of our traditions. It is our plain duty to do the best that is possible in the circumstances, while hopefully awaiting new revelations from research.

THE X RAY ABSORPTION SPECTRUM OF THE CHORIO-ALLANTOIC MEMBRANE OF CHICK EMBRYO AND THE EMISSION SPECTRUM OF THE ASH OF THE EGG OF THE DOMESTIC FOWL: A PRELIMINARY COMMUNICATION.[1]

By WM. H. LOVE, B.Sc.
(From the Department of Physics, University of Sydney.)

CERTAIN experiments which have been carried out in the biophysical laboratory appear to indicate that some wave lengths within the X ray region are more potent than others in their biological action on the chorio-allantoic membrane of chick embryo. A subsequent chemical analysis has also revealed the presence of lead and uranium in the tissue.

The general problem relating to the action of homogeneous radiation on living tissue has been attacked from another point of view and the investigation, although incomplete, has already yielded certain results which appear to illuminate the biophysical phenomena involved. These experiments are described in this paper.

Preparation of Membrane.

The egg of the domestic fowl is incubated for eight days, at which stage of the development the chorio-allantoic membrane is removed. This membrane is a particularly delicate structure containing a large percentage of water, and is difficult to handle. It can, however, be obtained in a form suitable for investigation by placing it on a small wire loop immediately after removal from the egg.

Experimental Procedure.

The spectral region investigated in any particular case was such that it included a wave length which was known to exhibit a selective biological effect, and the rotation of the crystal was adjusted accordingly. The spectrometer used in the investigation was the Müller type and after obtaining an absorption spectrum in a particular region the membrane was removed and a control spectrum for the same region was photographed, all other conditions remaining the same; in this way it was possible to ascribe any difference in structure between absorption and control spectrum to the presence of the allantoic membrane.

Absorption spectra for two biologically active regions have been obtained, the time of exposure

[1] This work was carried out under the control of the Cancer Research Committee of the University of Sydney and with the aid of the Cancer Research and Treatment Fund.

for each spectrum being about five hours, with a slit width of 0·05 millimetre.

In some of the spectra it was possible to distinguish the presence of a particularly fine white line in the spectrum and as this line does not appear in the control spectrum, it apparently represents a selective X ray absorption. In one photograph the line is particularly well defined and traces of another line in close proximity can be seen.

A diagrammatic representation of the appearance presented by the absorption spectrum is shown.

The measurement of the wave length of the absorption line is not a simple matter, because, while quite distinct and well defined to the naked eye, it cannot be measured with an ordinary plate measuring machine. However, an evaluation of wave length was made by placing the plate in contact with a millimetre scale ruled on plane glass and projecting on to a screen with the use of small magnification. Fractions of a millimetre could be estimated by direct measurement on the screen.

This measurement gave the distance between direct radiation and absorption line and from a knowledge of the crystal-plate distance the wave length could be determined.

In this way it was found that the wave length of the absorption line could be identified with the wave length of the L_2 absorption discontinuity of uranium and another absorption line has been found which could be identified with the L_2 absorption discontinuity of lead, although the photographs taken in this region are not as good as those in the uranium region.

Theory.

While it has been definitely shown that fine white lines occur in the X ray absorption spectrum of chorio-allantoic membrane, it would appear desirable that further work should be done before these lines are finally identified with the absorption discontinuities of lead and uranium. It is known, however, from a chemical analysis that these elements are present and further it is to be noted that the presence of fine white lines in X ray absorption spectra has been noted before. A pure line absorption has been often observed in the *L* and *M* spectra of many elements and also in the case of the *K* absorption spectra of lighter elements; typical lines of this kind were first noticed by Shenström and several are shown in his dissertation. It is also interesting to note that E. A. Lindh found that the *K* absorption of sulphur in the form of gypsum powder appeared as a white line on a dark background, very little difference of blackening existing on either side of the limit, and it appears that we have here a demonstration of a distinctly selective phenomenon. If a plate of gypsum was used, the normal absorption phenomenon was found. Further than this, it was found that the sharpness of the absorption line appeared to be closely connected with the sharpness of the emission lines of the same element in the same series and hence it may be understood why this phenomenon has not been observed in the short wave length regions.

It thus appears that the reduction of an element to the dispersed form may modify its absorption phenomena and thus in the case of a tissue containing small amounts of the heavy elements, lead and uranium, we might expect to find these characteristically sharp white lines.

The Emission Spectrum of the Egg of a Domestic Fowl.

Research on the detection of heavy element in the egg of the domestic fowl has also commenced and some progress has been made.

The egg is ashed, carbon and organic material are burnt out and water is eliminated. The ash is then applied to the copper target of a Shearer X ray tube and the emission spectrum of the ash examined by means of a rotating crystal. The evacuation of the tube was found to be a particularly difficult process, but a satisfactory output of X radiation was finally obtained.

The rotation of the crystal was so arranged that the strongest lines in the *L* spectrum of lead would be recorded if this element were present and an exposure of seven hours showed the presence of faint emission lines. Control exposures were made in which experiments the same region was photographed without the ash on the target. No emission lines were detected in these control experiments.

It is thus seen that heavy element is present in the ash of the egg, but the identification of the element has not yet been made.

It is intended that in the first instance the emission spectrum of the ash shall be compared with the spectrum of a lead target, taken under the same conditions.

The lines in the emission spectrum of the ash are fairly broad, but preliminary wave length measurements appear to confirm the presence of lead.

Work in the uranium region has not yet commenced; this paper is only a preliminary communication and it is hoped that detailed and complete results will soon be available.

THE X-RAY EVIDENCE OF ULCERATION IN THE STOMACH AND DUODENUM.

By H. W. WUNDERLY, M.D. (Melbourne), M.R.C.P. (London),
Honorary Assistant Pathologist, The Adelaide Hospital, Adelaide.

So many of the signs and symptoms of ulceration in the stomach and duodenum can be produced by conditions affecting organs remote from these

regions that we are often compelled to place considerable reliance on the result of an examination after a barium meal. It is my endeavour to set out what can be accepted as definite evidence of ulceration in these two portions of the alimentary tract. I make no claim to be a specialist in radiology, but as a physician have often been helped and sometimes misled by the report on the result of a barium meal.

THE STOMACH SHADOW.

There are two common forms of the stomach shadow, the Reider or fish-hook stomach in which the walls are almost parallel and do not cross the mid-line, and the Holzknecht or steer-horn stomach which does not occur so frequently. Its walls are not parallel and cross the mid-line and the pylorus lies at the lower end of the stomach shadow. This form of stomach empties more rapidly than the Reider type (see Figures I and II).

FIGURE I.
Reider or Fish Hook Stomach.

FIGURE II.
Holzknecht or Steer Horn Stomach.

Ulcer of the Stomach.

The signs of ulcer of the stomach may be classified as follows:

1. Sign of certainty—crater or niche.
2. Signs of probability: (*a*) Morphological, (i) hour-glass stomach, (ii) pyloric obstruction, (iii) adhesions; (*b*) functional, (i) hypersecretion, (ii) hypomotility, (iii) increased peristalsis.

Crater or Niche.

The crater or niche is the most important sign of ulcer and a positive diagnosis can be made in almost 100% of cases. It is usually seen only on the lesser curvature and there are two different types, one with a broad communication between the niche and the stomach so that they empty and fill together and a second type in which there is a very narrow communication between them and the niche tends to remain filled while the stomach is empty.

If the ulcer does not penetrate into the muscular coat, then a niche is not formed, for its production depends on the presence of spastic contraction round the ulcer. As this spastic condition is not constantly present, a niche may be seen at one examination and not at another. Normally the lesser curvature has a regular outline and the most common site for the appearance of a niche is a little posterior to this curvature, much more rarely a niche might be seen anterior to it. The greater curvature appears serrated owing to the folds in the mucous membrane and if the serrations are exaggerated, they are suggestive of ulceration of the stomach. Sometimes a niche appears on this surface, but it is not at all a certain sign of ulceration, for it may be due to the formation of a traction diverticulum by a perigastric adhesion. During the fluoroscopic examination of a niche it is usually possible to demonstrate tenderness to pressure.

A niche due to an ulcer must be differentiated from four conditions: (i) Barium which has passed out of the stomach and is at the duodeno-jejunal flexure; by turning the patient it will be possible to show that the shadow is beside the lesser curvature; (ii) calcified glands in the retroperitoneum; (iii) barium remaining in the normal folds of the stomach; (iv) diverticula of the stomach which occur near the cardiac end.

Hour-glass Stomach.

Hour-glass stomach may be due to (i) spasticity, (ii) scarring, (iii) malignant disease. The hour-glass appearance due to spasticity may be permanent or intermittent. The walls of the indentation appear as two parallel lines having sharp outlines, the communication between the two sacs is short and the lower sac fills fairly quickly and empties after the upper sac (see Figure III). When the

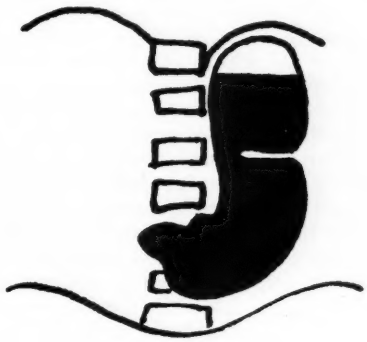

FIGURE III.
Spastic Hour Glass Stomach.

cause is scarring, there is a long narrow communication between the two sacs and the lower one fills very slowly and empties before the upper one (see

Figure IV). In malignant disease there is usually a concentric defect (see Figure V).

FIGURE IV.
Organic Hour Glass Stomach.

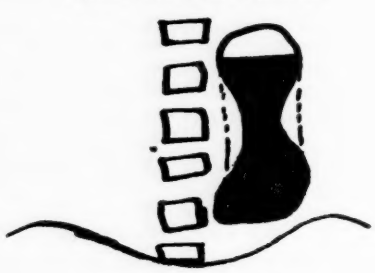

FIGURE V.
Malignant Hour Glass Stomach.

An hour-glass formation of the stomach shadow can be produced by the pressure of an overfilled colon, especially if the walls of the stomach are very relaxed. Also *tabes dorsalis,* hysteria, appendicitis and cholecystitis can cause spastic hour-glass stomach.

Diagnosis of Hour-glass Stomach Due to Ulcer From That Due to Growth.

The contour of the stomach is more regular in hour-glass stomach due to ulcer than in that due to growth and the contraction due to ulcer is usually near the lesser curvature in the middle of its length and is quite pronounced, while that due to carcinoma is generally in the middle of the stomach axis, not regularly placed between the pylorus and the cardia and is of only slight degree.

In ulcer the upper sac can be dilated and holds a lot of the meal, while its form changes easily with pressure. In carcinoma the walls tend to be rigid and stiff and the capacity of the cavity of the stomach is diminished.

"A true incisura due to a condition within the stomach must be constant and stationary, it must be present when the stomach hangs in its natural position, it must survive manipulation and it must persist after the patient has been given an antispasmodic which has exerted its physiological effect. This means that atropine or belladonna must be given till the face is flushed, the mouth dry and the pupils dilated." It is important to remember that duodenal ulcer occasionally gives rise to a reflex incisura in the stomach which resists belladonna.

Pyloric Obstruction.

The signs of pyloric obstruction are as follows:

1. The stomach is elongated and dilated.
2. Retention of the meal occurs.
3. Abnormal peristalsis is noted: (i) Stenosing peristalsis produces deep waves, (ii) paralysis of peristalsis is a late stage, (iii) reverse peristalsis must not be regarded as a definite sign of pyloric obstruction.

The obstruction may be caused by ulcer, scar, adhesion or tumour and if the evidence of its presence is definite, the patient should be submitted to operation.

Hyperperistalsis in the stomach might be the result of (i) pyloric obstruction, (ii) excitement, (iii) duodenal ulcer without organic narrowing of the pylorus. In pyloric obstruction stenosing peristalsis is present in the earlier stages, but after a time the musculature becomes atonic with weak or absent peristalsis in the dilated stomach. There is increasing widening of the stomach to the right and the pylorus is displaced in the same direction. In the ordinary atonic stomach this widening of the shadow to the right does not occur. In a stomach which seems to be greatly dilated, it is wise to search carefully for an ulcer which might be situated far from the pylorus. Irregular or arrhythmic peristalsis on the greater curvature is very suggestive of the presence of an ulcer.

Adhesions.

Adhesions are very difficult to diagnose. The pyloric end of the stomach might be seen pulled far over to the right side of the abdomen and situated much higher than normally. When adhesions are present, the lesser curvature tends to remain fixed and the other parts go towards it, that is, the greater curvature goes towards the lesser. An irregular outline may be produced on an hour-glass stomach.

Functional Signs of Probability.

The functional signs of probability are not so important as the morphological ones. Hypersecretion can be diagnosed with absolute certainty only when the fasting stomach has been emptied with the stomach tube some time before the examination or when the stomach has been seen to be empty at one examination and is found to contain a large amount of secretion a few hours afterwards, no food or fluid having been taken in the interval, otherwise it is impossible to exclude the possibility of retention. Hypersecretion is more typical of duodenal ulceration than of ulceration of the stomach.

Both hypermotility and hyperperistalsis may be seen. The former refers to rapidity of emptying time, while the latter refers to movements of the stomach walls. When pyloric stenosis is present, hyperperistalsis is associated with delay in the emptying time. Whereas hypermotility is common in cases of duodenal ulcers which have not produced obstruction, hypomotility is more usually found associated with gastric ulcer.

ULCER OF THE DUODENUM.

The following are the signs of ulceration in the duodenal cap.

Sign of Certainty: The Presence of a Niche or Fleck.

The niche or fleck might be only the size of a thorn, but can be easily seen on the fluorescent screen. Even this is not an absolutely certain sign of ulceration, for a similar appearance can be produced by adhesion of the duodenal cap to the gall bladder.

The shadow of the normal duodenal cap appears as a triangle. It is really in the shape of a cone with perfectly smooth walls in which there should be no folds. The pyloric channel should appear the size of a large knitting needle or thin lead pencil and be centrally placed in the base of the duodenal cap. The longitudinal axis of the cap is directed from the upper part of the right side of the abdomen to the left lower quadrant.

Signs of Probability.

Cole's Defects.

Cole's defects might involve the whole of the lesser or less commonly the greater curvature of the cap. Either of these conditions produces an eccentric position of the pyloric channel. The shadow may be defective on both sides and so produce a tube-shaped cap or a clover leaf or a cross. The base of the cap may be missing and so produce an elongated pyloric channel shadow or there may be an hour-glass appearance.

At first Cole thought that these defects were due to shrinkage of the walls of the duodenal cap, but it is now known that they are due fundamentally to spastic contraction, there being also a small element of shrinkage. Besides being present in cases of duodenal ulceration, they occur in some cases of cholelithiasis, cholecystitis and of chronic appendicitis. They have been observed to be present after an attack of renal colic. The use of the word "defect" in relation to these appearances in the duodenal cap is unfortunate, for everywhere else in the gastro-intestinal tract "defect" is used to describe the appearance in the shadow which is produced by a new growth.

The defects in the shadow of the duodenal bulb may be: (i) due to muscular spasm—functional defect, (ii) very rarely they are produced by the infiltration or induration of the ulcer wall or by a scar protruding into the lumen of the bowel—so-called organic defect, (iii) they may be due to adhesions which cause constriction of the duodenal bulb.

Spastic or functional defects frequently show a change of size in different examinations and generally have regularly rounded borders. They sometimes have the same appearance as the incisuræ which are seen in stomach shadows, and they are usually situated on the greater curvature of the duodenal shadow. These spastic defects have been seen in cases of nervous disease in which the walls of the duodenum have been shown to be quite normal. Organic defects have a constant appearance in different examinations and usually have an irregular outline. Besides being present in some cases of chronic appendicitis and of disease of the gall bladder, these spastic defects have been seen in patients suffering from ileo-caecal tuberculosis, ptosis of the kidney, pressure of a large common bile duct and also of papillomata and polypi. Slight lateral deviation of the pyloric canal may occur in normal persons and in cholelithiasis it might become definitely eccentric.

Changes Seen in the Stomach Shadow.

The changes seen in the stomach are: (i) Changes due to hypersecretion, (ii) hyperperistalsis which may be quick or slow and deep, (iii) hypermotility —rapid emptying—there may be a paradoxical rest which some think is due to spasm of the pylorus, but it is better to regard it as due to the barium settling out of the hypersecretion and the fluid passing on, (iv) incisura which might resist the action of belladonna.

Hypersecretion and hyperchlorhydria may be present in cases in which there is no ulceration whatever or in which the ulcer is in the stomach.

In hyperperistalsis the waves start high up as deep notches which may lead to complete constriction. Three or four waves may be present at once and often the prepyloric region is seen to be strikingly wide.

There may be a very rapid passage of the meal through both the large and the small bowel. In two or three hours a large amount of it may be seen in the transverse colon. Besides occurring in ulceration of the duodenum, this rapid emptying of the stomach may be seen in disease of the gall bladder and of the pancreas. It also occurs in diarrhœa, in achylia and in carcinoma which does not produce stenosis. Separated rests in the stomach after six hours are very suggestive of duodenal ulceration (see Figure VII).

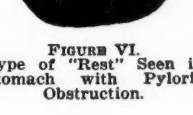

FIGURE VI.
Type of "Rest" Seen in Stomach with Pyloric Obstruction.

FIGURE VII.
Separated "Rests" Which are very Suggestive of the Presence of a Duodenal Ulcer.

SUMMARY.

1. The presence of a crater or niche or fleck is an almost certain sign of ulceration in the stomach or duodenum.

2. In ulcer of the stomach the signs of probability are: (i) Morphological — hour-glass stomach, pyloric obstruction and adhesions, (ii) functional —hypersecretion, hypomotility and increased peristalsis.

3. Hour-glass stomach may be due to spasticity, scarring or malignant disease.

4. The signs of pyloric obstruction are that the stomach is elongated and dilated to the right, there is retention of contents and the peristalsis is abnormal. There may be typical deep waves of stenosing peristalsis, there may be paralysis in the late stages or there may be reverse peristalsis.

5. Cole's defects and "fleeting filling" are signs of probability of ulceration in the duodenum which is usually accompanied by hypersecretion, hyperperistalsis and hypermotility in the stomach.

6. It will be seen that, although the signs of probability of the presence of a peptic ulcer are many and the signs of certainty few in number, yet a thorough screen examination of the passage of a barium meal will in 90% of cases give direct evidence of an organic lesion in the upper part of the abdomen and will nearly always be of great assistance in distinguishing between organic and functional dyspepsia.

THE TREATMENT OF NERVOUS DISORDERS.[1]

By JOHN BOSTOCK, M.B., B.S. (Lond.), D.P.M.,
Honorary Neurologist to the Brisbane General Hospital and Mater Misericordiæ Hospital, Brisbane.

IT is asserted with truth that successful treatment is dependent on accurate diagnosis. In the realm of psychotherapy this dictum is as true as in other branches of medicine. You will ask, therefore, how can the diagnosis be made—and its difficulty is apparent when the diverse classifications of neurasthenia, psychasthenia, anxiety neuroses, obsessional neuroses, hysteria, schizophrenias, paranoias and paraphrenias are considered. It must be realized that sometimes even the experts disagree as to the exact pigeon hole into which a particular patient may be allocated. Oft-times a single individual may be squeezed into two or three and in a few weeks' time a fourth is the most appropriate receptacle.

A motor car breaks down because of bad roads, faulty construction or bad driving. A man breaks down because of faulty environment, innate instability due to heredity, psychic stress or physical illness. As each of these factors is highly complex, it follows as a corollary that the number of possible combinations must be enormous. For this reason it is wise to regard each case not under fixed classification, but as a distinct entity, apportioning, so far as lies in one's power, the approximate percentage of the individual stresses.

Naturalists will recollect the old time classification of various birds, beasts and fishes into separate species; whereas research has proved that they are mere local variations, a complete collection showing every gradation in colour and size.

Whilst attempts at exact classification are laudable and necessary exercises for the expert, we need a simpler conception for practical purposes. That which will be now propounded, is one implying the essential unity of the body and mind. The individual reacts to stress and strain as a whole. He is built to withstand a certain amount of buffetting and to perform work of a certain nature; failure to stand up to the work may be due to a triviality or a gross defect. Often a minute flaw leads to far reaching results. For this reason the mechanic who, for example, investigates a motor car for such a behaviour fault as slowness on hills, must be prepared to overhaul every moving part and be prepared to find that a number is defective. To translate this into medical practice, the condition of a patient showing lack of power of attention, mental hebetude, emotional inertia, may be due not merely to psychic overwork, but to such physical factors as constipation, indigestion and deficient secretion of hormones.

We cannot escape the results of the vicious circle; matter and mind, mind and matter interact in endless procession, resulting in a kind of fisherman's tangle which must be slowly unravelled. Though brilliant short cuts to repair do undoubtedly at times occur, in the main the best results are due to patient effort; each system is reviewed in turn and the conduct of the case resolves itself into systematic treatment of the components. One of the commonest symptoms of nervous disorder is headache; often the patient comes for treatment of this alone. It is surprising how frequently the following combination of factors are found in the same patient: (i) worry, (ii) constipation, (iii) indigestion, (iv) eye strain, (v) hypothyreoidism. The remedy of a psychological discussion of mind habit factors, the exhibition of magnesium carbonate after meals, thyreoid extract and a visit to the ophthalmic surgeon give results of a gratifying nature, quite unobtainable by dependence upon a single remedy. The use of a fixed *questionnaire* cannot be too strongly stressed, my own, in addition to the routine psychological history, including sleep, dreams and headache, embraces cold tolerance, breathlessness, abdominal pain, constipation, indigestion, cough, prevalence of sore throats or colds, frequency of micturition and eye strain, menstrual functions. It must be admitted that, though often one draws a blank, important clues to accessory factors are frequently found on unexpected occasions. The truism that no symptom is too trivial to be neglected, must be constantly reiterated. The ideal case history would include a thorough investigation of every symptom; whilst this is a practical impossibility, we

[1] Read at a meeting of the Ipswich members of the Queensland Branch of the British Medical Association on June 20, 1929.

must endeavour to do so in the time at our disposal. Undoubtedly the quickest method is by studying behaviour which we assess through inquiries on symptomatology.

Armed with the above facts and a physical examination, one is in a position to attack more fully the mental make up leading to the nervous symptom. It is a good rule never to pass any opinion until all preliminary investigation is completed; this aids the very necessary *rapport* between patient and physician. The former should consider the latter thorough, painstaking, sympathetic and above all master of the situation.

The physical examination is, as mentioned above, all important. The attitude of the physician should be: "Can the symptom possibly be caused by an organic factor?" before he ever hints at the functional element. Any other procedure must frequently end in disaster. In this connexion may be cited a patient who came under my notice:

A man for years had a "delusion" that a red hot brick was boring into his back. The autopsy revealed an aneurysm corroding his vertebra at the level he indicated.

Quite recently an epileptic complained of a pain in his abdomen, which no one took seriously. It was classed as a typical epileptic grumble; a radiograph revealed, however, a kidney packed with stones.

Within the last few months I have seen confusional psychoses, a patient with *dementia præcox*, a neurasthenic and a patient with anxiety neurosis, an epileptic, apparently cured or relieved by either the extirpation of tonsils, the correction of a defected septum or the removal of abscessed teeth.

Another dramatic case was the apparent cure of a generalized "hysterical" spasm by the surgical relief of a painful visceroptosis. The almost instantaneous cessation of a state of mania after an appendicectomy is another example. In all these a physical malady had induced a strain which eventually disorganized the psychic fabric. Often no physical factor is apparent, but one cannot help thinking that new diagnostic aids will prove that they are more frequent than is now supposed. From the practical point of view, a thorough physical examination is unfortunately expensive, it indicates a need for more team work together with the cheapening of accessory diagnostic aids.

Examination and Treatment.

In order to understand the mental make up of any individual, some form of analysis is essential. It is unfortunate that psychoanalysis is often thought to be solely practicable by the method of Freud. This consists of using free associations, the patient talks at random about any topic which enters his consciousness. Suggestion and persuasion are not employed. Such a method should be reserved entirely for the expert; in the hands of the unskilled it may do untold harm. The process is too lengthy for the majority of cases and recourse must be had to psychoanalysis by directed associations. The subject is placed at ease and encouraged to talk of his symptoms. He is questioned about his childhood, domestic and social relationships, character traits, sexual life, psychic traumata in the form of shocks or painful experiences, work and hobbies; in a word one seeks to obtain a mental picture of the intellectual and emotional reactions which form the personality.

Close questioning concerning the family history in the presence of the patient is in my opinion a mistake, since, should mental instability be discovered, it can only make the condition seem more hopeless. After all, from the therapeutic angle the interest is purely academic.

The literature concerning psychic stress is confusing and extremely complex. On the one hand we see the school of Freud placing sex in the front benches, whilst Jung quotes regression and Adler stresses the inferiority complex.

In a sense all are right and it is easy for any psychiatrist of experience to show examples from his case books which prove up to the hilt any of these theories. It must be remembered that much depends on the manner in which the history is taken, just as no independent two historians who closely investigate any epoch in history, will coincide in their views. Whilst one may eulogize achievement, the other may stress the evidences of decay. Much rests on the viewpoint.

It may be taken for granted that nine-tenths of humanity have worries of some sort or another. The psychopath makes his worries his master and suffers tortures in consequence. Their variety is legion as is shown by a list taken at random from the histories of actual cases: on blushing, spermatorrhœa, impotence, hatred of parents or relatives, intrusion of disagreeable throughts into consciousness, stammering, lack of confidence before strangers, loss of relatives, doubt as to suitability of marriage, homosexuality, fear of tending insanity, jealousy of husband or wife, sense of a double personality, fear of death or physical disability, sense of unreality, religious doubts, homicidal or suicidal impulses, sense of impending danger, fear of childbirth, fear of having imbecile children, sense of being an inferior or peculiar individual, fear of possessing some disease.

One's first difficulty is to make the patient talk. He is ready to admit symptoms of nervousness, but frequently he represses the actual kernel of his trouble. He fears publicity, he is afraid of ridicule; he has a feeling that he will be merely told to push his worries away—a form of advice which has been repeated *ad nauseam* by every friend he possesses.

It helps to create the "expansive atmosphere" by the physician reciting some examples of worry in other patients and explaining that the patient will be helped by unburdening himself to an absolutely impartial adviser. Unfortunately the general practitioner is at a disadvantage because he is suspected of being in collusion with the rest of the family and in fears relative to personality or insanity he is regarded as a "body" doctor and not a mind doctor. Whenever grave depressive thoughts of these kind

are encountered the advice of an alienist is therefore indicated.

The worry having been exposed, it must be combated. As a commencement it may be explained that life consists of a series of situations to be faced as they arrive. One must look at them from every angle, come to definite opinion, make a decision and then carry it out. Often the patient will exclaim: "How can I?" One must then explain that the capability to make disposition may be acquired in much the same way that one grows muscles, that is, by exercise. The use of simple occupations such as handwork, gardening, raffia work, needlework, carpentry *et cetera* automatically strengthens the character since it involves the creation of something new. Planning, concentration and attention are all necessary.

Considerable ingenuity and scheming is required in order to start the patient on the required path and sometimes much may be done by suggesting that the physician would take it as a personal matter if such and such article was made for his private use.

There is a subtle distinction between work and occupation. Most of us object to the former, but we do not mind the latter. You will be far more likely to encourage effort if you explain that it is not work you desire but merely occupation. The one is drudgery, the other may be pleasant. The incident of Huckleberry Finn is *à propos*. When he was given some painting to do, he encouraged his friends to do the work by suggesting that it was a competition. Truly a name means much.

A discussion of reeducation will serve as a prelude to several conceptions which, though of an essentially simple nature, aid considerably in dealing with a patient. It must be realized that the physician's task is to make him *au fait* with his mental condition, so that instead of being, as it were, in a morass of doubt, the road to freedom is clearly delineated.

The chief difficulty of the neurotic is that, like an animal caught in a trap, he is baffled and turns from side to side in a vain endeavour to escape. The world seems unreal, his own personality appears to be changed, gaiety has turned to sadness, repose to restlessness, interest to indifference—life has become inexplicable. In order to change the viewpoint we must show that far from being inexplicable, the condition is completely understood and can be combated. To do this explanations couched in simple language are requisite, since the abstract terminology of ultra-scientific psychology is far too complex for persons of ordinary education. In the followings columns will be found a few of the conceptions which I find useful in my psychotherapeutic conversations.

The Law which States that any Vacuum Tends to be Filled.

It is obvious that any vacuum is unstable. Translating this truth into the realm of psychology, should a patient intend to relieve himself of fears and doubts he must replace them by something. The faster they are replaced, the faster they will depart. The use of the vacuum simile gives a mental picture of the need for occupation. It may be reinforced by quoting how during the war period many neurasthenics were cured by the active participation in war work.

The Law of Reversed Effort.

Those who have tried actively to repress a thought, for example, a bereavement, a bad investment and other disaster, will realize that the procedure is extremely difficult. As in Hutchinson's description in "The Clean Heart":

> Here is young Wiford in bed, pitying himself, reproaching himself, thinking of Brida, thinking of the Filmers, thinking of old Bill, thinking of Alice, thinking of work . . . . pitying himself; hating himself for doing it; in a tangle; in a torment.
>
> Daily the situation becomes worse until in desperation he screams: "Oh, my God! Oh, can't anybody see I am going out of my mind with all this? Oh, isn't there anybody who can understand me and help me? Oh, I say, I say, I say. This cannot go on. This must stop. This must end."

Those who have read the book know that it ended in attempted suicide and a confusional psychosis.

In real life this type of reaction is extremely common. A depressive thought arises, the patient, ashamed of himself, tries conscious repression and tells no one of the worry; years of misery thereby result. A lady thought that her legitimate son might possibly be the offspring of an illegal liason; an old woman found to her horror that she was harbouring sexual ideas; a man considering that a boyhood lapse into masturbation put him beyond the pale, are actual examples of how the attempt at direct action against a simple idea met with failure. In all three cases the result was a neurosis, cured by the mere explanation of the manner in which the wrong psychic weapons had been used. The thoughts were natural and might have occurred to anyone; instead of fighting them, the patient must laugh at them, regard them as simple associations of ideas instead of terrifying bogies. The more attention one pays to them, the stronger they become through the law of reversed effort. The catchy tune which is picked up at a comic opera, may jangle in one's brain for a day or two, but it disappears at length. Were we actively to endeavour to banish it, the duration would be longer. The magnification of trifles is always a mistake.

The Law of Contrast.

One of the practical difficulties which beset the psychotherapeutist is to explain the often inevitable relapse. For a few days all is well and then the black figure of melancholy appears blacker than ever. Suicide most often occurs when recovery is in sight. A simple method of explaining this to the patient is by referring to the law of contrast. White against a black background seems whiter and *vice versa*. In the same way, freedom from mental symptoms acts as background forcing into high relief a comparatively mild depression. Personally

I often warn the patient that this may occur, so that he may be forearmed and act accordingly. In the same connexion it is useful to explain that recovery seldom takes place in an uninterrupted gradient, but is like the ascent of a mountain where the road passes along declivities, but the general tendency is none the less upwards.

The Immateriality of any Specific Depressive Idea.

Most of us have experienced a pain which seems unbearable, and have noted that it would seem more bearable in any other position. The psychopath is tortured by the maddening nature of his particular worry. If only I had A's or B's thoughts, they sometimes tell us, I might recover. In such cases the simile of the mind as possessing two sets of pigeon holes, to wit the depressive and the joyous, is often useful. In depression all the ideas are taken from the former and *vice versa*. It is important to realize that the actual thought is not worth the proverbial tinker's cuss; the emotional feeling is the thing that matters. A discussion on these lines enables the patient to visualize his condition and helps him to acquire an insight into his symptomatology which is essential in persuasive and educative treatment.

The Constant Stream of Consciousness.

You will be frequently asked why a patient cannot think clearly, cannot memorize, cannot concentrate his attention *et cetera*. It is useful to be able to answer this question in a better manner than by referring to mere "nerves" or "rundownness." My own method is to utilize the simile of the stream of consciousness. This is conceived as of a constant volume which in well ordered minds runs along a straight channel. If it is diverted by worry from side to side, along two channels, then the depth must be less with consequent diminution in the energy. A diminution in the force or head of the stream of consciousness must inevitably result in diminished memory *et cetera*. It is surprising how an intelligent patient appreciates this simile and it may be used with effect in stressing the evil results of worry. A case at random illustrates its utility:

Some time ago I was consulted about lack of virility in a male. It transpired that during his wife's absence he had discovered he was impotent. Examination showed the defect to be functional. A happy therapeutic result was produced by explaining how the stream of nerve force was diminished by worry as to (i) the possible discovery of a slip from the straight and narrow path of rectitude, (ii) the fear of venereal disease.

The Utility of Relaxation.

Often we are asked about the feelings of "tension," of being "strung up," of "tightness," of "irritability." These questions pave the way for a discussion on the merits of relaxation. It should be explained that undue nervous tension wastes the nerve energy and fatigues the body since every muscle is working overtime. The patient should be encouraged to have rest periods and regular meal hours. If a few minutes may be snatched from the turmoil of the day's work, they should be employed in lying down with every muscle relaxed. With practice the efficacy of these simple measures is astonishing. Massage helps materially in training the patient to habits of relaxation.

The Uniqueness of Mental Symptoms.

Most patients at heart consider that their conditions are exceptional: "No one ever had such depression, such morbidity of feeling, such intellectual impairment." To combat this it is useful to be able to quote realistically similar cases. Interest is aroused, hope is raised as one cites the successful conduct of the case towards health and happiness. The ability to quote accurately an exact parallel is important, since the patient is only too ready to think: "Ah! but your example did not have such and such symptoms." As with every other ruse in suggestion and persuasion, the spoken word must be timed and measured to a nicety.

Every Psychotherapeutic Conversation is as Secret as the Confessional.

That the medical fratenity treat all case histories as confidential is so well known to ourselves, there is a danger that we forget our patients are less well informed. The subject matter of a psychotherapeutic discussion involves the most sacred and hidden feelings of the mind; probably much of it has never been previously divulged. It aids the procuring of the necessary "confidence" *rapport* if at the outset the physician reminds the patient that everything is confidential and in the case of the very timid it may be mentioned that should they so desire, no case notes will be taken.

Hyperacuisis is a Common Symptom in Nervous Disorders.

In patients showing excess psychomotor activity an increase in auditory acuity has been experimentally confirmed. Even in those showing depression the patients are so self centred that they strain every sense to hear anything about their condition. For these reasons not only must one be guarded in one's speech at the bedside, but when conversing with the friends the possibility of eavesdropping must be carefully excluded. I have seen several patients whose mental illness was made definitely worse by their overhearing the gloomy prognostications of their medical adviser. Often the nurse is similarly at fault and she should be warned about the dangers of discussing the mentality of her charge. Liberties should never be taken, even if the patient be stuporose or apparently disinterested. The example of Mrs. X. may serve as an apt illustration:

For months she remained in a condition of stupor, her favourite position being to sit for hours with her skirt held over her head. On her recovery, she was able

to recite chapter and verse of every incident which occurred during her stay in hospital and complained bitterly of remarks made by the staff.

The Time Factor.

One of the reasons why the quacks occasionally score off the legitimate practitioner is that apparently for them, time and money are synonymous. If the patient has the latter, then they will find the former. There is no doubt that this induces the art of patience and meanwhile the reflux of time produces its own cure. This is specially true in cases of a cyclic or manic-depressive variety. Again time often produces a desired environment change.

The physician must realize from the outset that most mental disorders are the outcome of long periods of faulty adaptations with consequent formation of wrong habits and reactions. To cure these will often require efforts lasting over a period comparable to their acquirement. He must think therefore in weeks rather than days, in months rather than weeks. In no other walk of life is the dictum of "more haste less speed" so aptly appropriate than to the psychiatrist. His motto must be "patience," his hero should be "Job."

The Importance of Sleep.

Much has been written of the evil effects of hypnotics, more might be said of the evil effects of insomnia. The experimental evidence as to cortical changes accompanying prolonged loss of sleep is too well known to need repetition. In my opinion insomnia is the greatest single factor in the majority of cases of mental breakdown. Whilst hypnotics have their uses and must often be employed, a psychotherapeutic discussion with the patient is most important. Explain that whilst deep sleep is a desideratum, mere relaxation is almost as efficacious. It should be mentioned that the commonest cause of sleeplessness is the fact that first sleeplessness is expected, secondly there is a tendency to try too energetically to woo sleep. Sleep should arrive without effort, as with a baby. When relaxation occurs and the body is comfortable, sleep arrives automatically. If the patient is anxious about the hours of sleep, it may be explained that people have reached old age and retained their virility on two hours sleep nightly. In suitable patients, particularly drug addicts, hypnotism acts like a charm. Massage frequently induces sleep and is sometimes a valuable line of treatment.

Time will not permit of a discussion of all the innumerable psychological problems which are set by cases of nervous disorders. Each one must be considered on its merits. Whilst every practitioner adopts a more or less standardized technique, the arguments used in suggestion and persuasion must largely depend on the intellect of the patient. The bluff directness which might suit a bookmaker in all probability would antagonize a pillar of the church. The psychiatrist must endeavour to be all things to all men, maintaining throughout an atmosphere of broad mindedness and impartiality. There will, of course, be failures. One cannot suit everyone and moreover, some neurasthenics will be satisfied by none.

Of Drugs.

The number of drugs foisted on the profession by enterprising manufacturers is legion. It is a good policy firstly to use few, but to know them well, secondly push the dosage until the physiological action is reached. For example, in a case of severe insomnia, if sleep is promised then insure that it materialises. After two or three nights the patient has confidence and the dosage may be diminished.

For the restlessness and depression which accompany so many nervous states, a combination of bromides, chloral, hyoscyanus, *nux vomica* and gentian, though old fashioned, has much to recommend it.

Idiosyncrasies are numerous and the phrase that "what is one man's meat, is another man's poison" is peculiarly *à propos*. The proprietary drugs such as "Luminal," "Dial," "Amytal," "Bromidia," "Somnos" are of use in certain cases. The same may be said for the calcium salts, veronal, trional and sulphonal. In cases where pain is a feature, morphine and its derivatives are indispensable, but it should be stressed that when pain is absent morphine is sometimes contraindicated. When chronicity occurs, alterative treatment by protein shock occasionally produces excellent results. The malarial treatment of syphilitic lesions has proved a successful remedy, though unfortunately the difficulty of finding a suitable malarial donor limits its applicability. The use of thyreoid extract when hypothyreoidism is suspected, is so well known as to need no further mention.

Physiotherapy.

Massage and electricity too frequently are used as the last resource rather than the initial venture. After dallying with sedatives and advice, the aid of the masseuse is invoked to accomplish a mystical transformation. This method is unfortunate, first because the patient is prejudiced by the non-success of the previous treatment and secondly the massage is not regarded as an integral link in the initial conduct of the case. The masseuse should be trained in your technique and thereby reinforce your suggestions. This of course entails the closest cooperation and the ideal method is to have the massage department in close proximity to the consulting room. The physician is in almost daily personal contact with the patient and can naturally emphasize suggestion and persuasion more efficiently. They usually require to be repeated, if not to infinity, at least as often as possible. The masseuse should be regarded as the physician's deputy, able to give a daily hour of treatment for which the principal cannot afford the time. In an ideal practice the physician would himself administer the physiotherapy.

Hypnotism.

As in the Freudian type of psychoanalysis, harm may be done by the inexpert in the matter of hypnotism. Most cases of nervous disorder are more amenable to treatment by persuasion and re-education than by hypnosis. Brilliant results are obtainable in a relatively small percentage. As a method of treatment by the general practitioner its use is inadvisable.

Conclusion.

There is a trite epigram which runs *"Qui s'excuse s'accuse,"* although by seeking to excuse oneself for inflicting a few platitudes which may be very familiar, there is the excuse that one cannot compress a gallon into a quart measure. Even a score of dissertations on mind healing would not exhaust its potentialities. An attempt has been made briefly to outline the thesis that mental disorder is due to faulty adaptation of both mind and matter to its environment. After assessing the various maladjustments, one is able so to alter the relationships that harmony replaces disharmony, psychic health takes the place of psychic disorder.

Reviews.

A BOOK FOR MOTHERS ON BABIES.

In her book, "Our Babies,"[1] Dr. Gertrude C. Buzzard Dunlop has supplied a long felt want. Written by a mother who is also a medical woman of wide experience, it deals with the everyday problems of motherhood and the care of infants in a way which is intelligible to the average mother or nurse and is at the same time sound, scientific, complete and for the most part thoroughly modern.

So excellent and so readable is her treatment of these very wide and important subjects, condensed of necessity into a comparatively small space, that it would be difficult to find any serious fault in the book.

In her first chapter on "Home Care" Dr. Dunlop gives much sound advice mingled with some quiet philosophy. In her second chapter on "Food" sound and practical advice is given. Captain Cook is described as having kept his sailors in good condition by regularly giving them lime juice and by landing for fresh, raw food whenever he could. History would probably record that Captain Cook gave his men lemons and not limes. At all events experience in the British Navy and in Mesopotamia proved that lime juice was not effective in preventing scurvy, whereas lemon juice was effective.

Dr. Dunlop recommends that at each meal every child over two years of age should take half a pint or two small mugs of milk. This would appear to be in addition to the milk used in cooking puddings *et cetera*. Experience has proved that many children over the age of infancy who are on a full diet, do not tolerate with advantage quite such large amounts of the rich milk usually supplied in Australia and authorities seem to be agreed that a pint and a quarter of milk in twenty-four hours is a safe maximum for routine feeding to children on full diet, though this can be exceeded with advantage in special cases.

Rice is recommended as a good food, while sago and tapioca are condemned as poor starchy foods. This preference would be still more valid if whole unpolished rice were specified, especially as it is now obtainable in Australia.

In her paragraph headed "Foods to Avoid in Childhood" Dr. Dunlop is a little too drastic in proscribing "all tinned foods . . . and pastry." So many fruits and vegetables and even milks are tinned so safely and effectively that it would be tragic to forbid their use by children, especially in the outback.

Pastry has been described by Eric Pritchard as a well balanced and digestible article of diet and it must be agreed that shortcrust pastry properly prepared and cooked with suitable fruit, as in the well loved apple pie, is safe and desirable for older children who can masticate properly.

In her chapter on "Marriage and the Ante-Natal Care of Infants (Pregnancy)" Dr. Dunlop advises abstinence from sexual intercourse during lactation on account of the risk of too early pregnancy. From the psychological point of view at least the use of a safe contraceptive would be wiser advice.

The danger symptoms of pregnancy are emphasized in a salutary way which can be commended not only to expectant mothers, but to practising obstetricians.

In her otherwise excellent chapter on "Confinement" the author omits to mention the third stage of labour which might lead to confusion in cases without skilled help.

Mastitis is defined as "inflammation of the breast, but without sepsis." It would be more correct to say "without abscess formation," as simple mastitis is under discussion.

The chapter on the feeding of infants is excellent and commendably simple. Assuming cow's milk of average composition of protein 3·5%, fat 4% and sugar 5%, then the formula for humanized or modified cow's milk recommended would yield approximately protein 1·4%, fat 3·7% and sugar 7%. The fat and sugar in this mixture are a little too high in proportion for safety in routine feeding, especially in hot weather, and Dr. Dunlop wisely advises working up to this mixture from weaker dilutions.

The author does not sufficiently emphasize the discrepancies that exist between measurements by weight and volume respectively and she would do well to insist on the nation-wide adoption of reliable standards for these purposes such as have been introduced by the Public Health Department in Victoria.

These minor points for criticism do not mar an excellent chapter for mothers on infant feeding.

In her chapter on minor ailments Dr. Dunlop would do well in her next edition to revise the paragraph on snake bite in the light of the recent work of N. Hamilton Fairley, C. H. Kellaway and others. Her advice that moles, especially if pigmented, should be removed by a doctor is a little too sweeping. We all know people who would suffer great loss of skin if this were done, and such a procedure could be left till adult life with advantage.

The few statements in this little book, on which opinions may differ, do little more than emphasize the general excellence of the volume, which can be heartily recommended to every mother or prospective mother and contains much of real value to trained nurses and medical practitioners.

[1] "Our Babies," a text book for mothers by a medical mother, by Gertrude Clemes Buzzard Dunlop, M.B., Ch.B. (Melbourne), with forewords by Dr. A. Jeffreys Wood, Dr. Harvey Sutton and Dr. H. W. Armit; 1929. Sydney: The Australasian Medical Publishing Company, Limited. Demy 8vo., pp. 102, with illustrations. Price: 1s. 6d. net.

PHYSICAL METHODS IN TREATMENT.

In his "Physio-Therapy in General Practice" E. Bellis Clayton gives a clear and concise account of physical methods of treatment which are available in a well equipped hospital department.[1] The general practitioner who wishes to give his patients the benefit of such treatment, finds difficulty in procuring it apart from such institutions. The value in a great many very diverse conditions of physical methods is little known apart from those who take a special interest in the subject.

[1] "Physio-Therapy in General Practice and for the Use of Masseuses," by E. Bellis Clayton, M.B., B.Ch. (Cantab.); Second Edition; 1928. London: Baillière, Tindall and Cox. Royal 8vo., pp. 241, with illustrations. Price: 12s. 6d. net.

Dr. Clayton's book, now in second edition, should be of very great value in drawing attention to their importance. The subject matter is well arranged and the description of exercises is clear and helped by excellent illustrations. The chapters on fractures and scoliosis are specially good, particularly the one devoted to the description of crawling exercises. The book will be read with great advantage by the masseuse, medical student and practitioner.

THE GALL BLADDER.

IN their treatise on "Diseases of the Gall Bladder and Bile Ducts" Graham and his collaborators present a very complete study of the physiology, pathology and clinical investigation of the biliary system as far as this can be done in the light of our present knowledge, which has been greatly augmented by the original work of the authors.[1]

The most interesting chapters are probably those dealing with their discovery of the principle of cholecystography, the technique of its application and the rationale of cholecystographic interpretation.

The authors consider the intravenous administration of the dye the most reliable and the method of choice, but discuss without bias the relative values of this and the oral route, quoting freely the results and opinions of those favouring the latter.

This section of the book, however, occupies not much more than one fifth of the space, the remainder being taken up by a review of the anatomy of the extrahepatic bile ducts, the physiology of the gall bladder, the pathology of cholecystitis and gall stones, abnormal and pathological conditions of the bile ducts, tests of hepatic function in the diagnosis of biliary disease and, finally, the surgical treatment of cholecystitis.

The treatment of the subject is most thorough, even in its historical aspect; the very full bibliography is one of the many merits of the book, reference being made to the work of no fewer than six or seven hundred other writers.

That the volume is one that should be studied by every physician, surgeon and radiologist is perhaps emphasized by the findings of Blackford and Dwyer, quoted on page 169, in a series of 1650 patients with gastric symptoms. In these the approximate relative frequency of abdominal disease causing dyspepsia was: gastric ulcer, 1; gastric carcinoma, 2; "reflex" appendicitis, 4; duodenal ulcer, 6; gall bladder disease, 12. It is obvious that all the available knowledge of such a frequent and often obscure condition as the last named should be a possession of every diagnostician.

BLOOD VASCULAR CEREBRAL TUMOURS.

IN a new monograph Cushing and Bailey treat of a type of intracranial condition which is so rare that a surgeon with a long hospital career may pass through life without encountering an example.[2] Nevertheless any who are in the least interested in brain work would like to study it and to have it on their shelves.

Professor Cushing has, as is usual with all his work, searched through the world's medical reports for cases to compare with his own.

He divides the book into angiomatous malformations, of which he gives fourteen personal examples and hæmangioblastomas of which he gives eleven cases. These latter he feels sure are undoubtedly neoplastic, but after considering the evidence he has been able to collect, he believes that the former are developmental anomalies.

As to treatment, X rays alone offer any hope in the first group, although a decompression may be necessary to prevent blindness. It is possible to diagnose them before operation by use of the stethoscope and suspicion ought to be raised if there are nævi also present in the region supplied by the fifth cranial nerve.

On the other hand with the recent advance in technique, especially the advent of the three forms of diathermy or electro-desiccation, operation holds out very fair hope of complete relief in the angioblastomas. These are almost if not entirely confined to the cerebellum. An unexpected assistance in diagnosing these latter is the frequent occurrence of a nævus in the retina.

The book is beautifully illustrated both with sketches made at the time of operation and with micro-photographs.

It is well printed and of a convenient, readable size.

EMPTY VARICOSE VEIN INJECTION.

RONALD THORNHILL has produced a well written book in which he describes a method of injection of varicose veins by "empty vein injection."[1] He advocates the use of quinine and urethane. Sir Berkeley Moynihan in a foreword states: "What is certain is that a new, simple, safe, quick device has been found for dealing with conditions formerly remediable only by extensive and protracted methods, and that patients who could not prudently be advised to submit to surgery can now be relieved of their discomforts and dangers without a qualm of anxiety."

Full details of technique are given and a special nozzle for the syringe is recommended for injection; this, however, is not essential to the technique and would, if anything, seem somewhat unnecessary and likely to complicate an otherwise simple procedure. Whilst the book contains much of interest to those who are practising this method of treatment of varicose veins and any new method such as this is of interest, nevertheless the author gives very little reason why his method should be adopted in preference to the simple method usually employed. He states that he feels sure that good results will be obtained with more certainty, that the degree of dilution in the veins can be gauged more accurately and that leakage at the site of puncture of the vein is less likely to occur. These advantages are offset by the difficulty of making a strictly intravenous injection into a collapsed vein. The impression is gained that the results are exactly the same as may be anticipated by the ordinary methods employed, with an undoubtedly greater liability to "spachelous" formation.

A BOOK ON DERMATOLOGY.

THE eighth edition of Schamberg's "Compend of Skin Diseases" gives a simple, straightforward description of the more common affections of the skin.[2]

The book is freely illustrated, some of the illustrations being particularly good. It contains nothing new, except perhaps a few lines on the malarial treatment of neurosyphilis. There is also a warning as to the dangers of the treatment of *lupus erythematosus* by gold compounds.

On the whole the little volume should be useful to students and general practitioners, though of little value to those who practise dermatology.

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[1] "Diseases of the Gall Bladder and Bile Ducts," by Evarts Ambros Graham, A.B., M.D., Warren Henry Cole, B.S., M.D. Glover H. Copher, A.B., M.D., and Sherwood Moore, M.D.; 1929. London: Baillière, Tindall and Cox. Royal 8vo., pp. 492, with illustrations. Price: 35s. net.

[2] "Tumors Arising from the Blood-Vessels of the Brain: Angiomatous Malformations and Hemangioblastomas," by Harvey Cushing and Percival Bailey; 1928. London: Baillière, Tindall and Cox. Royal 8vo., pp. 229, with illustrations. Price: 34s. net.

[1] "Varicose Veins and their Treatment by 'Empty Vein' Injection," by Ronald Thornhill, M.B., Ch.B., with Foreword by Sir Berkeley Moynihan, Bart., K.C.M.G., C.B., M.S., F.R.C.S.; 1929. London: Baillière, Tindall and Cox. Crown 8vo., pp. 74. Price: 5s. net.

[2] "A Compend of Diseases of the Skin," by Jay Frank Schamberg, A.B., M.D.; Eighth Edition, Revised and Enlarged; 1929. Philadelphia: P. Blakiston's Son and Company. Crown 8vo., pp. 340, with illustrations. Price: $2.00 net.

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The Future of The Printing House.

On another page in this issue will be found the report of the Directors to the members of the Australasian Medical Publishing Company, Limited. From this report it will be gathered that the year that ended on June 30, 1929, has been a bad one for the company, as it has been for nearly every other printing business in Sydney and in other cities throughout Australia. Many well established firms have been faced with greatly reduced takings; not a few have no profits, while some have been compelled to wind up their affairs. The general commercial depression has hit the printing trade hard. Periods of intense trade depression do not last for very long in Australia and there is no reason to anticipate that this one will persist for a very long period. In spite of slackness of trade common to the majority of houses and in spite of the fact that the Australasian Medical Publishing Company, Limited, has been engaged in the printing business for a relatively short time and is in consequence less prepared than the older firms to withstand a difficult period, The Printing House has been able to pay its way, although its profits have not been sufficient to enable the Directors to pay interest on debentures. The Directors have determined to make certain changes in the management and to introduce some drastic economies to enable the company to continue its activities with improved prospects. Steps are being adopted to secure a greater volume of work in the near future. It is an open secret that some members of the Branches of the British Medical Association in Australia have become alarmed at the prospects. There have been unfounded rumours of grave difficulties and of impending disaster; a few of the medical practitioners who generously provided the money necessary to establish The Printing House a little more than four years ago, became alarmed lest the debentures held in their names should prove bad investments. Fortunately for the medical profession these rumours and fears have arisen without a full understanding of the real position. The Printing House is in no imminent danger at present and if its friends, instead of becoming scaremongers, would exercise themselves in patience, the future of the undertaking would again appear to be bright. We would remind our readers that the establishment of a scientific press in Australia is worth some sacrifice, that the medical profession will derive much benefit from the ownership of an up-to-date house where this journal and many other scientific publications are carefully and well produced. In a few years' time when the business is returning a fair profit and when the general standard of printing of scientific work in the Commonwealth has been raised to a high level of excellence, the medical profession will realize that The Printing House is a valuable asset and that the struggle to attain this end has been worth while.

Those who have been prepared to wreck the venture because profits have not been immediate, should be reminded that they have done nothing to contribute to the success of this new business that has proved itself so difficult to achieve in these days of financial stringency. Medical practitioners who have the interest of this undertaking at heart, can assist by placing their orders for stationery with The Printing House. They will find that the charges are reasonable, that the work is neatly done and that prompt service is given. Some members of the Queensland and Victorian Branches of the British Medical Association have learned that they can support their own printery without making any financial sacrifice. In addition to this direct support members of the medical profession can help in an indirect manner, by inducing companies and organizations with which they are associated, to employ the company for their printing. The company needs more work and it appeals to the members of the several Branches of the British Medical Association in Australia to provide some of that work.

The Printing House has been planned and organized in accordance with the principles of industrial hygiene. Criticism has been levelled at the management that the introduction of ideal conditions entails extravagance. The house and the ground on which it stands have been acquired at a relatively low cost. Cleanliness, good ventilation, good illumination and proper sanitary arrangements are not expensive commodities. Those who have had the courage to insist on the maintenance of good conditions of labour, have discovered that contented and healthy workers produce more and better work than do men and women driven by the minimum requirements of the industrial awards. The seeming costliness of good conditions disappears as soon as an ample supply of work is secured. It pays any management to make every effort to reduce absence on account of ill health to a minimum. It should be unnecessary to point out to medical practitioners that the psychological problems in industry are real problems and that the study of the human element in an industrial undertaking is essential to the complete success.

The directors of the company have made reference in their report to an investigation that they instituted into the affairs of The Printing House nearly a year ago. Mr. Hadley holds that the directors have been very fortunate in having secured a considerable mass of business in the first three years of its activities. It is further emphasized that more work is required to keep the machines moving all the time. Mr. Hadley is convinced that if strenuous efforts are made to secure more work, the success of the undertaking is assured. There is still a great deal to be done to convert the present partial success into complete success. Those who are concerned in the management, are prepared to make unremitting effort and to expend much energy to overcome the remaining obstacles. The spade work of the past four years and more has been productive of considerable results. The Printing House has established its reputation for accuracy in the setting up of even the most complicated scientific matter as well as for good printing. We are convinced that the near future will reveal The Printing House as a profitable venture.

Current Comment.

PNEUMONIA DUE TO IRRITANT GASES.

THE introduction of irritant gases into warfare was followed by investigation into the nature of respiratory disorders following on their inhalation. Among the resulting conditions is pneumonia. Some observers have held that this is caused solely by the chemical agents and others have regarded pathogenic microorganisms as playing a part in the ætiology. Thus Delafield, Prudden and Wood regarded the pneumonia as due solely to the chemical action and as not necessarily accompanied by bacterial infection; at the same time they held that bacterial infection might occur. On the other hand Winternitz, Lambert and Jackson failed to find any difference in the bacteriology of pneumonia in dogs which had not been gassed and in those which had been gassed. A. R. Koontz and M. S. Allen have recently studied this question.[1] They have investigated the pneumonia occurring in the lungs of animals which were gassed with toxic compounds during experimental work at the Edgwood Arsenal. The gases used included mustard gas, methyl-dichlorarsine, lewisite, phosgene. In most of the lungs affected by mustard gas epithelial cells and polymorphonuclear leucocytes were present in large numbers, nine specimens contained a few bacteria, sixteen contained many and seven contained a large number of bacteria. In lungs affected by methyl-dichlorarsine the exudate manifested a predominance of epithelial cells and mononuclear cells. Twelve lungs contained few bacteria, two contained many and four large numbers of bacteria. There was no correlation between the number of bacteria and the type of exudate. In lungs affected by lewisite a leucocytic exudate was prominent. Seventeen lungs contained a few bacteria, three contained no bacteria and seven contained many. When phosgene was used death was usually due to œdema. If survival was prolonged, the œdematous fluid became infiltrated with leucocytes; the resulting pneumonia was not peribronchial in character, but was generalized throughout the alveoli as if arising from the alveolar walls. Leucocytes, mononuclear cells and epithelial cells were present. Most lungs which were affected by phosgene and which had an exudate, contained many bacteria. On investigation of the relationship of bacteria to the type of exudate it was found that bacteria were prevalent in all types of pneumonic exudates.

When normal lungs were investigated bacteriologically, abundant growth of organisms was obtained from the trachea and bronchi. From the lung tissue in most instances there was no growth; a few bacteria were found in the bronchial mucosa, but none was found in the alveolar structure. When pneumonia was produced by the intratracheal injection of copper sulphate solution, by the inhalation

[1] *The Journal of Experimental Medicine*, July 1, 1929.

of nitrous oxide fumes or by the intravenous injection of ethyl-bromacetate, none of the lungs was sterile. Autopsies were performed on a number of dogs which suffered from spontaneous pneumonia. In most a leucocytic exudate was present and intracellular bacteria were found. Koontz and Allen point out that the anatomical picture claimed by Wood to be produced frequently by chemical agents without the aid of bacteria, was present in some of these animals.

In spite of their numerous observations Koontz and Allen come to no definite conclusion in regard to the causal relationship of the bacteria present in the gassed lungs to the pneumonia. They merely sum up the arguments for and against. Against a causal relationship they place (i) the early appearance of pneumonia after gassing, (ii) the occurrence of pneumonia with the presence of very few bacteria, (iii) the fact that very few bacteria are engulfed by leucocytes in gassed lungs, whereas large numbers are present in the forms of pneumonia not due to gassing and are conspicuously intracellular. In favour of a causal relationship they recognize (i) the presence of bacteria in large numbers, (ii) the fact that the picture of bronchopneumonia presented is similar to that of bronchopneumonia of known bacterial origin, (iii) the occurrence in animals that have never been gassed or that have not been subjected to other irritating substances, of pneumonia characterized by large numbers of epithelial cells in the exudate, in other words, of the so-called chemical pneumonia.

The first thing to be considered in this regard is the effect of an irritant gas such, for example, as chlorine, on a cell in the respiratory mucous membrane. The gas will penetrate the cell and will enter into combination with the cellular protoplasm. As a result of this water is taken up by the cell and œdema of the mucous membrane occurs. If the œdema is sufficiently acute, a condition of complete atelectasis developes and the patient will die from asphyxia. This was what occurred in the phosgene experiments. It is this extreme condition which gives the key to the situation. In our issue of May 11, 1929, the subject of lobar pneumonia was discussed in connexion with some work by Coryllos and Birnbaum. These observers claim that pneumonia must be regarded as one form of atelectasis of the lung. They also hold that pneumonic infection of the bronchial tree is not by itself sufficient to produce lobar pneumonia. Whether the complete conception of Coryllos and Birnbaum in regard to lobar pneumonia be accepted or not, their views undoubtedly offer a reasonable explanation of the conditions which obtain in so-called chemical pneumonia. Alveolar cells which have been attacked by an irritant gas, will be much more susceptible to bacterial influences than normal cells. It is not unreasonable to suppose that irritation of the alveolar cells will bring about a cellular exudation and that this response will be predominantly either leucocytic or epithelial according to the nature of the irritant and possibly other factors. The condition must thus be regarded as primarily an atelectasis with a subsequent multiplication of bacteria and infection of the alveolar cells by them. The findings will vary according as the œdema or the bacterial activity predominates.

CHOLELITHIASIS.

THERE is a measure of truth in the saying that statistics may be made to prove anything. They are of definite value in medical matters only when the numbers are large and when they are dissected by an impartial observer. A statistical study of cholelithiasis has recently been made by Désirée M. B. Gross, of the Department of Pathology in the University of Leeds.[1] Her conclusions are largely confirmatory of accepted teaching, but there are some points which will repay consideration. Further, perusal of this study will direct attention to the importance of the keeping of complete records, to the necessity for *post mortem* investigation and to the value of analysis of results extending over a period of years. The material on which the study has been made, was collected at 9,531 autopsies made during the years 1910 to 1926 inclusive. In this series 802 subjects were found to be affected by gall stones. In only 380 instances was accurate classification possible; cholesterol stones were present in 133 bodies, faceted stones in 154, mulberry stones in 29 and pigment stones in 64. Definite association was found between cholecystitis and faceted and pigment calculi; there was none between cholecystitis and the solitary cholesterol and mulberry stones. The difference between the percentage of bodies in a control series affected by cholecystitis and the percentage of those with faceted stones affected by cholecystitis was 17·7. When pigmented stones were considered the difference was 10·2%. With solitary cholesterol stones and mulberry stones the differences in percentages were 0·9 and 2·5 respectively. Of 100 solitary cholesterol stones 92 were discovered at autopsy. In the remaining eight the clinical diagnosis was acute cholecystitis in two instances and cholelithiasis in six. It is concluded that disturbances of an inflammatory kind are mainly responsible for the formation of the faceted stone and general metabolic factors for the solitary cholesterol stone. Gross claims that an association exists between diabetes and gall stones. There is an editorial footnote, however, in which it is pointed out that this claim rests on a very slender foundation, because the chance against the differences being due to random sampling is thirty to one and the difference found by the author is in no instance as much as three times its standard error. It may also be pointed out that the figures for faceted stones and cholesterol stones are very similar. If there were a relationship between diabetes and cholelithiasis, it would be expected that the figure for cholesterol stones would be higher.

[1] *The Journal of Pathology and Bacteriology*, July, 1929.

Abstracts from Current Medical Literature.

MEDICINE.

Tuberculous Meningitis.

K. OCHSENIUS (*Deutsche Medizinische Wochenschrift*, February 8, 1929) refers to the difficulty of the early diagnosis of tuberculous meningitis owing to the variety of symptoms which frequently conceal the onset of this disease. Repeated vomiting without any gastric origin is suspicious. He considers that he has elicited another sign of considerable value. The child which is apparently well, suddenly developes difficulty in speaking or else uses unintelligent phrases. This aphasia or dysphasia is not present in every instance and its absence is no proof against the possibility of tuberculous meningitis. But when it is present, the onset of more definite signs is not long delayed.

Soft Eyeball (Hypotonia Bulbi) in Diabetic Coma.

A. J. PATEK (*Journal of the American Medical Association*, February 9, 1929) draws attention to the importance of lowered intraocular tension in the differential diagnosis of coma. This sign, although not constantly present, is found in a large number of patients suffering from diabetic coma. It is not found in coma arising from other causes. The tension may not be lowered equally in both eyes. The causation of the lowered tension is unknown.

Senile Pulmonary Tuberculosis.

H. SCHLESINGER (*Deutsche Medizinische Wochenschrift*, January 4, 1929) refers to the relative frequency of recent tuberculous infections in elderly persons. He found such changes in 9% of a series of 1,800 *post mortem* examinations. In the majority of cases the original infection occurred in youth and had remained quiescent or progressed but slowly. The onset of diabetes or influenza in particular caused a recrudescence in many instances. Fresh infections in old age were rare and generally due to infection while in hospital. The site of infection was usually apical, although atypical sites such as the lower lobes were comparatively common. Because of the chronicity of the process the whole lung is generally affected and riddled with caseous masses or cavernous spaces. Emphysema was noted mainly in the fibrotic types. The clinical picture resembles that in younger persons except that emphysema may mask many of the signs. Radioscopic examination of the chest is most valuable and tubercle bacilli are often found in the sputum. In the majority of instances the disease pursues a chronic course with few outstanding physical signs. The author found the urochromogen test of value in prognosis. This consists of adding a drop of a concentrated solution of potassium permanganate to the urine, when a yellow reaction occurs. The prognosis is unfavourable when a strong positive result is obtained. Tuberculin in small doses is valuable, although many react severely, especially if too strong dilutions are employed. Cure is not to be expected, but the general condition shows considerable improvement, sputum is diminished in amount and fewer bacilli are obtained. Opiates are used to control the cough and senega and ipecacuanha to increase the sputum. Inhalations of etherial oils are required for patients with fœtid sputum. Hæmorrhages and night sweats are treated along the usual lines and anorexia is combated with bitter tonics. Arsenic is useful in overcoming general debility. Open air treatment is generally out of the question at this age. When the condition becomes quiescent, light gardening with frequent intervals of rest is very useful in preventing the patient from brooding and becoming a nervous wreck.

Chronic Arthritis.

NATHAN MUTCH (*The Practitioner*, January, 1929) discusses the common changes in the blood in chronic arthritis. The uric acid content may be high, even in the absence of signs of gout. If it is above two milligrammes per hundred cubic centimetres, four day courses of phenylcinchoninic acid should be given and repeated every month. Rarefaction of bone is a frequent sign and should call for calcium as simple salts or in colloidal form and in milk foods. Fat-soluble vitamins should be added to the diet freely, for example, cream, butter, cod liver oil or irradiated ergosterol; ultra-violet light may aid this treatment. If the blood calcium falls below ten milligrammes per hundred cubic centimetres, a serious view should be taken of the condition. Anæmia is a common accompaniment of chronic rheumatism and should be met by the administration of iron. The waters of some spas are reputed to be of value on account of their iron content, but rarely is this sufficiently concentrated to affect the anæmia. The waters at Trefriw in North Wales are said to contain 1·2 parts of iron per thousand in the ferrous form, easily assimilable; they may be used for their possible effect.

Bronchial Asthma.

M. MATTHES (*Wiener Medizinische Wochenschrift*, February 9, 1929) discusses the treatment of bronchial asthma. He considers that desensitization tests should be done only if the patient cannot live away from the particular substance to which he reacts or if one substance alone is the cause of the trouble. Except in asthma due to pollen the immunity does not last for long. He has had no experience with vaccines from nasopharyngeal culture, but admits that any such local site of infection should be treated. For desensitization he prefers old tuberculin, commencing with dilutions of one per million and gradually increasing to one in ten thousand over a period of one year. A von Pirquet test is done, especially with children, before the injections are commenced. Radiotherapy of the chest is most valuable. Four fields posteriorly and three in front are mapped out and several applications are given. The dose is one-third of the erythema skin dose. This treatment produces an eosinophilia as well as acidosis. Acid foods should be given in preference to those containing much alkali. Occasional days without food often produce surprising results. The author does not believe in any operative procedures such as section of the vagus or sympathetic. Adrenalin is used for the acute attack and he has never seen any ill effects from large doses over long periods. The newer remedies, ephedrine and ephetonin, have not been very successful in his hands. Even in small doses many patients refused to continue because of the severe tachycardia induced by their use.

Syphilis of the Liver and Kidney.

V. KOLLERT (*Wiener Medizinische Wochenschrift*, January 26, 1929) divides syphilitic lesions of the liver into two groups according to the presence or absence of jaundice. When jaundice is absent, the lesion is either an interstitial hepatitis, a gumma or a combination of both. At first the liver is not increased in size to any great extent, but there is enlargement of the spleen and ascites may be present. Later, with the contraction of the connective tissue the liver becomes divided into irregular lobes. Gummata present varying physical signs according to their position and size. The larger forms are found close to the falciform ligament. While at first they feel harder than the surrounding liver tissue, this is reversed during the later stages of shrinkage of the liver when they may resemble cysts. Jaundice may develope following compression of the main biliary tracts and similarly ascites. In the differential diagnosis between gumma and carcinoma it is pointed out that the former more frequently occurs in the left lobe of the liver and is associated with splenic enlargement besides being amenable to antisyphilitic remedies. Severe jaundice is usually characteristic of *icterus præcox*, "Salvarsan" poisoning or acute hepatic dystrophy. *Icterus præcox* occurs at the time of appearance of the secondary rash. The liver is enlarged and tender, the spleen palpable and the stools pale. If "Salvarsan" be administered to such patients the condition becomes worse. The liver decreases in size and becomes altered in consistency. Restlessness passing to delirium, irregular temperature and pulse, the presence of leucin and tyrosin in the urine and finally apathy and coma mark the progress from a simple catarrhal jaundice towards complete destruction of the hepatic tissues. Glucose and "Insulin"

may act as a temporary measure, but cannot produce cure in the severer grades. Gummata in the kidneys are rare and so is interstitial nephritis. Acute glomerulonephritis may exist, but it is difficult to be sure that syphilis is the real cause. Paroxysmal hæmoglobinuria is generally associated with a luetic infection. If bismuth be used in large doses, it may cause considerable exfoliation of the renal epithelium with the presence of finely granular cells in the urine. œdema and raised blood pressure are not observed and albuminuria may be absent. "Salvarsan" and mercury may cause albuminuria and hæmaturia, also fatal conditions resembling uræmia or eclampsia, but with the usual doses employed no harm should result to the kidneys.

Jejunal Ulcer.

A. F. HURST AND M. J. STEWART (*The Lancet*, October 20, 1928) discuss the symptoms and diagnosis of jejunal and gastro-jejunal ulcers. Either of these may develope at once after gastro-enterostomy and the symptoms of gastric or duodenal ulcer may merge into those of the new anastomotic ulcer. Of thirty-four patients traced seven had no relief after operation, nine were relieved for a few months only, twelve for between one and two years and six for between two and twelve years. Symptoms of anastomotic ulcer often follow errors in diet, chill, excessive smoking or alcohol. Pain may occur after meals, level with the umbilicus and generally to the left of the middle line. Nausea, flatulence and hæmatemesis may occur. Melæna also is common and occult blood was found in the stools in 84% of the thirty-four cases investigated. Severe anæmia, local tenderness and rigidity are often found. A test meal usually reveals hyperchlorhydria or a high normal acid content. The stoma is seen in the skiagram and tenderness can be elicited over the stoma or within ten centimetres (four inches) of it in the efferent limb of the jejunum; this is the only means clinically of differentiating jejunal from gastro-jejunal ulcer. Obstruction may occur at the stoma. Patency of the pylorus should be looked for, as the possibility of undoing the gastro-jejunostomy depends on this. Anastomotic ulcer should be suspected when symptoms recur after gastro-jejunostomy. When the meal is seen in the skiagram passing out by the stoma and none by the pylorus, duodenal ulcer can be excluded. The pain in jejunal ulcer is more irregular in its time of onset and less easily relieved by alkalis than in duodenal ulcer. In regard to complications, perforation may occur into the peritoneum or into the transverse colon; the latter may be direct or there may be a fistulous track with a valve-like opening and intermittent symptoms. Diarrhœa, colicky pain, belching of gas with a fæcal odour and fæculent vomiting may occur; rapid emaciation is common. A skiagram reveals the fistula, often an opaque enema enters the stomach rapidly. Fæcal material may be found in the stomach contents. Prophylaxis consists in giving adequate treatment for gastric or duodenal ulcer, removal of septic foci and operating only after correct diagnosis and due consideration. After operation full instructions as to diet, additional feeds between meals, olive oil before meals and moderation in smoking should be given. Medical treatment consists in giving very thorough treatment on the lines laid down for gastric and duodenal ulcers. If prolonged treatment on these lines fails or if severe obstruction is present, excision of the ulcer and restoration of the stomach and jejunum to their normal anatomy should be advised.

Thyreotoxicosis.

J. L. MILLER (*The American Journal of the Medical Sciences*, January, 1929) reviews the problems of thyreotoxicosis. Physiological hyperplasia of the thyreoid gland is found at puberty and during pregnancy. The administration of small doses of iodine will prevent this hyperplasia. It has been estimated that the annual iodine requirement of the thyreoid gland under normal conditions does not exceed fifty milligrammes. With regard to the morbid histology of the thyreoid gland in hyperthyreoidism, two types have been differentiated, namely the diffuse hyperplastic and the nodular or so-called adenomatous gland. It is debatable whether the adenoma is a real tumour or merely a localized hyperplasia. The author suggests that the term toxic adenoma should be abandoned and in its place the term "thyreotoxicosis with nodular goitre" should be used. The histological picture in the hyperplastic type resembles that of the physiological hyperplasia of puberty, the chief difference being that of degree. Considerable variation has been found in the iodine content of normal thyreoid glands. In pathological glands Marine found that the iodine content varied directly with the amount of colloid and inversely with the degree of hyperplasia. Deficiency of iodine is, however, not an essential factor in the production of hyperthyreoidism. The effect of the administration of iodine on the iodine content of the gland has been studied by Zansen and Robert who found that normal gland showed a relatively great increase in its iodine content, while the simple goitre showed a moderate relative and absolute increase, as did the gland in hyperthyreoidism, but to a lesser degree. The iodine content of the blood was also studied. It was found that in Graves's disease the iodine content of the blood was increased threefold, but that there was no relationship between the amount of iodine in the blood and that in the thyreoid gland, suggesting that in Graves's disease there is inability to store iodine in the gland. Histological studies of the gland after the administration of iodine made by Reinhoff support Marine's view that the action of iodine in hyperthyreoidism is mechanical, interfering with the escape of the secretions into the circulation. It is considered by some observers that the primary disturbance in hyperthyreoidism occurs in the epithelial cells of the thyreoid gland. The function of these cells is to remove iodine from the blood and to convert it into iodoglobulin, so that it may be stored in the colloid. The lack of storage ability leads to iodine deficiency and disappearance of the reserve iodoglobulin and the colloid. The compensatory hyperplasia is a response to inadequate thyreoid secretion. The diagnosis of hyperthyreoidism is often a matter of great difficulty. The hyperthyreoidism arising from the use of iodine usually disappears after the withdrawal of the drug. Treatment by medical means does not cure, although patients so treated may temporarily regain their health, due probably to the tendency of this disease to spontaneous remissions. The chief field of usefulness of iodine is in preparing patients for operative measures. Treatment by means of surgery or X rays offers the patient the best chance of recovery. Myxœdema following treatment by X rays is rare. With radical surgical procedures, myxœdema has been noted in 15% of patients. In the severe types of the disease Röntgen ray therapy is not warranted, as beneficial results rarely appear under eight weeks. The patient should be at rest during the preoperative treatment with iodine. Sodium iodide is recommended instead of Lugol's solution, one cubic centimetre of which is equivalent to 150 milligrammes of sodium iodide. A satisfactory remission is usually obtained in from eight to twelve days. The necessity of following up patients subjected to thyreoidectomy is stressed by the writer.

Apical Pulmonary Tuberculosis.

M. FISHBERG AND A. SHAMASKIN (*The Journal of the American Medical Association*, July 13, 1929) offer evidence that a favourable prognosis may be given to those patients suffering from pulmonary tuberculosis in whom the lesion is located in and limited to the apex of the lung. They maintain that in active and progressive tuberculosis the initial lesion is nearly always found below the clavicle. Ordinary physical examination of the chest, however, will not usually reveal the early infiltration in this situation and the diagnosis may not be made, though the symptoms are suggestive of pulmonary tuberculosis, unless a skiagram is taken. There is a tendency for the process in these infections to spread downwards in the lung, while the apex may remain free of tuberculous infiltration. On the other hand, in numerous patients presenting the classical physical signs of apical pulmonary tuberculosis good health is maintained for years and rarely does the lesion show a tendency to spread. In support of this assertion, the authors analysed one hundred and sixty cases in which X ray

evidence clearly showed the earliest localization of the tuberculous lesion. In one hundred of these the initial lesion was in the infraclavicular region, while in sixty it was confined to the lung above the clavicle. Of the patients with apical lesions 32% survived ten years or more after the first appearance of symptoms. In the infraclavicular group less than 2% lived so long. One out of three with apical lesions survived more than five years, but only one out of ten with infraclavicular disease lived for five years. They also noted that infraclavicular lesions occur mainly in adolescents and young adults and that most of these patients, while in a sanatorium, were at some time febrile. Those with apical lesions were less likely to present profound constitutional symptoms and as a rule were continually afebrile. In this latter class physical signs and skiagraphic changes may persist for years, but the patient survives and may be able to attend to his work.

Artificial Pneumothorax in Pulmonary Tuberculosis.

J. CAUSSIMON (*Journal de Médecine de Bordeaux*, May 10, 1929) pleads for the early induction of artificial pneumothorax in the treatment of pulmonary tuberculosis. He points out that it has been abundantly proved by statistics that no other treatment can show comparable results, but he believes that results would be even better if collapse therapy were employed at an earlier stage. In patients with a unilateral lesion in whom several weeks of sanatorium treatment fail to control signs of activity, pneumothorax should be induced without delay. If in an apparently arrested case signs of activity reappear within a short time after return of the patient to normal life, this is also an indication. The author holds that a tardily induced pneumothorax is the enemy of pneumothorax treatment. If in the presence of a unilateral lesion collapse treatment is put off from month to month, one of several possibilities will probably result. Usually cavitation appears and it is very unusual to be able to cause a cavity to collapse completely; pneumothorax will not give a good result. Often pleural adhesions are formed and again no satisfactory result can be expected. Lastly, after a few months of watching the lesion may become bilateral. Pneumothorax is then thought of as a last desperate resort and it is performed on the side most affected. Perchance it succeeds and improvement is manifested, but it is only temporary and the patient dies later. The family and perhaps the family medical practitioner blame the pneumothorax for the fatal issue, forgetting that no treatment at this stage could give any other result. The author exhorts the medical practitioner to have the courage to refuse to perform pneumothorax in these circumstances. He concludes that in collapse therapy the result is good in proportion to the precocity of its induction; it is far better to induce too early than too late.

Scurvy at Moyale.

THE occurrence in October, 1928, of four cases of scurvy at the Government station, Moyale, Kenya, is stated by A. R. Esler (*Kenya and East Africa Medical Journal*, February, 1929) to have been due to drought with consequent failure of crops. Three of the men affected were soldiers of the King's African Rifles, the fourth was a station hand. All were following their usual round of duties prior to the onset of disease and all were in receipt of their usual rations which included (in the case of the soldiers) 256 grammes of fresh meat a day, but were unable to obtain any extras in the way of fresh vegetables. Each patient complained first of pain in the lower extremities, followed by swelling. The characteristic inflammation of the gums was a feature in all patients. Feeding with raw potatoes and onions brought about a speedy recovery. Two patients were treated with 64 cubic centimetres of preserved lemon squash every day for five days without any good effect. The native agriculturalists of the surrounding district managed to keep some cattle alive and were able to obtain small quantities of fresh milk. The author suggests this as the reason why no scurvy occurred among these people and asks whether the vitamin *C* content of fresh milk is greatly modified or diminished under drought conditions.

Gastric Digestion.

M. E. REHFUSS AND G. H. MARCIL (*The Journal of the American Medical Association*, March 9, 1929) discuss the gastric digestion of meat in health and disease. One hundred grammes of cooked meat of different kinds were administered to healthy students and fractional test meals were carried out. Two types of stomach were noted, the rapid and the slow; the former emptied in two hours thirty-five minutes, the latter in three hours twenty-five minutes. The average total acidity at the highest point of digestion was 120 degrees (hydrochloric acid), almost twice as high as obtained with cereal and vegetable meals. Poultry gave similar figures to meat. Milk caused a higher total acidity (100) than bread, vegetables and carbohydrate, whereas eggs (80) produced an acidity close to that of bread. Sixty grammes of scraped meat were given to various sufferers from chronic complaints such as pernicious anæmia, heart failure, chronic nephritis *et cetera* and the results were compared with those obtained with the Ewald test meal. It was found that in chronic disease as a rule both meals gave a lower total acidity than in health, but that the meat meal gave higher figures than the Ewald meal. In gastric and duodenal ulcer, however, the meat meal produced a much higher gastric acidity (125 to 141) than the Ewald meal and the evacuation time with meat was prolonged. In some cases an acid response was obtained with meat when little or no acid was found with the Ewald meal (breadstuffs). The conclusion was reached that meat is less likely to be digested in chronic ailments in which the acidity of the stomach contents is below normal. A response to a meat meal when there was no response in acidity to the Ewald meal was held to give a better prognosis. In pernicious anæmia and *carcinoma ventriculi* and in one case each of chronic cholecystitis and delayed resolution of lobar pneumonia no acid secretion was obtained with either meal.

Xerostomia.

H. CURSCHMANN (*Münchener Medizinische Wochenschrift*, February 15, 1929) describes several varieties of xerostomia. The idiopathic and atrophic form, first called "dry mouth" by Hutchinson, is met with almost exclusively in elderly females and is frequently associated with diminution of the nasal and lachrymatory secretions as well. The tongue feels hot and dry and is very painful while there are areas of paræsthesia. Atrophy of the gums is generally associated with the condition. These secretory and nervous changes are probably associated with senile alterations in the buccal mucous membrane and are analogous with pruritus in other areas. The salivary glands and Stenson's duct are intact. In younger people this condition has a psychical basis and speech is generally affected. He has seen several examples especially in singers whose voices have been seriously affected. A third group comprises those cases due to organic lesions of the central nervous system especially those of the brain stem. Case histories illustrative of the three forms are appended.

Subcutaneous and Intracutaneous Vaccination.

W. KNOEPFELMACHER (*Wiener Medizinische Wochenschrift*, February 16, 1929) discusses the comparative merits of intracutaneous and subcutaneous injections of calf lymph. Both methods have a great advantage over scarification in forming no pustules. In the intracutaneous method 0·1 cubic centimetre of a dilute solution of lymph is injected into the skin; some observers prefer to inject enough to form a small pool of lymph, although in these circumstances there is a greater risk of pustular formation. The author prefers the subcutaneous method. Usually between the eighth and fourteenth days an area of infiltration forms around the site of injection. He recommends subcutaneous injection into the upper arm, thigh or abdomen of 0·5 cubic centimetre of a one in two hundred dilution in normal saline solution of calf lymph. The site of injection should be inspected on the

tenth or eleventh day to observe whether the result be positive. Infiltration of the tissues occurs somewhat earlier if the intracutaneous method be adopted.

Intracutaneous Vaccination.

F. GIERTHMÜHLEN (*Münchener Medizinische Wochenschrift*, February 1, 1929) refers to the advantages of intracutaneous vaccination as compared with the usual methods employed. In his experiments he found that the calf lymph issued by various laboratories varied in strength. Using one brand, he injected lymph diluted with normal saline solution to make a strength of one in 100. This provoked both local and general reactions similar to those of ordinary vaccination. When dilutions of one in 250 to 300 were substituted, these reactions disappeared. With another sample of lymph a dilution of one in 50 gave good results. It is therefore evident that a standardization of lymph is essential before this intracutaneous method is employed. In successful vaccination there is little fever, no pustule formation nor scarring while the general condition of the patient is little affected. With the usual method of scarification there is a rise of temperature until the tenth or twelfth days, but with this method fever does not extend beyond the first week.

Non-tropical Sprue.

PHILIP MANSON BAHR (*Journal of Tropical Medicine and Hygiene*, May 1, 1929) reports a case of sprue occurring in England. The author refers to similar reports by others in Holland, Germany and Denmark and states that he hesitated to accept the view that such a condition as non-tropical sprue exists and waited a long time before reporting his own case. The patient, a woman, was first seen in 1920, when she presented an appearance indistinguishable from that seen in sprue. Aphthæ of mouth and tongue were present. The stools were large and fatty. The hæmoglobin percentage was 80, the colour index was 1·1 and the red cells numbered 3,500,000 per cubic millimetre. The abdomen was distended and doughy, the liver dulness was diminished. With treatment she improved only to relapse two years later after childbirth. She suffered a further relapse in 1924, when the hæmoglobin value fell to 50%. On this occasion treatment with milk and liver soup was unsatisfactory, but the patient responded well to Cantlie's meat dietary and has remained well since. The author suggests that the occurrence of sprue in England may eventually shed light on the ætiology of the disease.

Toxic Constituent of Bile.

W. C. EMERSON (*Journal of Laboratory and Clinical Medicine*, April, 1929) discusses the toxic constituent of bile. Bunting and Brown showed that bile injected into the peritoneal cavity caused death in rabbits in twenty-four hours. Bile salts cause hæmolysis and coagulate myosin, so that muscle loses its contractility; this action on the heart causes death by myocardial failure. Injected intravenously, bile salts cause slowing of the pulse and lower the arterial blood pressure. An alcoholic solution of pig's bile pigment was injected into a dog's vein slowly, with no evidence of any toxic effect. Diluted ox bile (equal parts of normal saline solution) injected into dogs' veins caused a gradual fall of blood pressure and cardiac arrhythmia; the lethal dose was 21·3 cubic centimetres per kilogram weight. When a 3% solution of sodium glycocholate was injected into dogs' veins, it caused a fall of blood pressure and arrhythmia of the heart similar to diluted bile; 18·7 cubic centimetres per kilogram was the lethal dose. A 3% solution of sodium taurocholate had the same effects, the lethal dose being 22·4 cubic centimetres per kilogram. The bile pigment was removed from ox bile by treatment with blood charcoal and this bile diluted with equal quantities of normal saline solution was injected into dogs' veins with resultant fall of blood pressure and irregularity of the heart, the lethal dose of this preparation was 16·2 cubic centimetres per kilogram. Pigment from human gall stones dissolved in alcohol was injected intravenously with no effect on blood pressure or respiratory rate. These experiments indicate that bile pigment has practically no toxic effects on dogs; that whole bile and sodium glycocholate and taurocholate have toxic effects and lethal doses almost exactly similar. The conclusion is that the toxic constituent of bile is the bile salts sodium glycocholate and taurocholate.

Salmonella Food Poisoning.

W. G. SAVAGE (*The Proceedings of the Royal Society of Medicine*, January, 1929) deals with food poisoning due to the salmonella group of organisms. This group causes a large proportion of outbreaks of food poisoning, it comprises *Bacillus enteritidis*, *Bacillus paratyphosus A*, *B* and *C*, *Bacillus aertrycke* and Derby, Stanley, Newport and Reading types of salmonella group, *Bacillus suipestifer* and others. Many of these organisms are found in domestic animals and epidemics of food poisoning in man have been traced to animals, the excreta or tissues of which are infected with one or other of these bacteria. Rats, mice, cows, calves, pigs, guinea-pigs and parrots suffering with enteritis or other infections have been incriminated as causes of food poisoning epidemics in man. The excreta of mice containing *Bacillus aertrycke* have been found close to cream containers, the contents of which have given rise to 59 cases of food poisoning in New York. This cream was infected with salmonella group organisms and the epidemic was due to *Bacillus aertrycke*. Such clear cut evidence as this is difficult to obtain, but many similar occurrences have been recorded in different countries. The nature and epidemiology of these diseases in animals is, however, not well understood and further investigation is necessary. It is well known that human carriers of the food poisoning group of organisms (apart from *Bacillus paratyphosus*) are rare. Milk, brawn and potted meat have been the cause of serious epidemics and it is true that the salmonella group produces toxins which will withstand boiling for several minutes.

Gallop Rhythm.

H. MOND AND E. T. OPPENHEIMER (*Archives of Internal Medicine*, February, 1929) record some observations on gallop rhythm in hypertension. Simultaneous records of the heart sounds and electrocardiograms were made. It was found that the third sound audible in gallop rhythm corresponded to auricular systole and this was attributed to a lessening of the damping effect of the mass of the ventricles which normally prevents the auricular contraction from being heard. A physiological third heart sound has been described, but the cause of this sound is not certain, it does not correspond with auricular contraction. The third sound heard in mitral stenosis, variously spoken of as reduplication of the second sound or as a rudimentary diastolic murmur, differs entirely from the third sound of gallop rhythm; it is independent of auricular contraction since it often occurs during auricular fibrillation. Gallop rhythm is characteristic of hypertension with heart failure and is of serious import, though not necessarily indicative of early death.

Fibrosis of the Lung.

L. S. T. BURRELL (*The Proceedings of the Royal Society of Medicine*, January, 1929) discusses fibrosis of the lung in children. Bronchopneumonia following measles or influenza is the most frequent cause of fibrosis in children; recurrent colds and bronchitis are common in early life and in some instances the bronchitis affects the same part of the lung each time and not the whole lung, with resulting fibrosis or bronchiectasis. In a child who has frequent attacks of bronchitis, treatment should be aimed at removing infection in the tonsils, teeth or gastro-intestinal tract and a prophylactic vaccine either autogenous or the anticatarrhal vaccine of Parke, Davis and Company is often useful in preventing recurrence of colds and bronchitis. An initial dose of 0·1 cubic centimetre should be increased by 0·1 cubic centimetre every three or four days until 1·0 cubic centimetre is reached or until a reaction is produced, in which case the dose is not increased. Light clothing, sunlight, fresh air and exercise are important for prevention of recurring colds.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE SOUTH AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Darling Building, University of Adelaide, on April 26, 1929, DR. J. CORBIN, the President, in the chair.

Pathology of Thyreoid Disease.

PROFESSOR C. S. HICKS read a paper entitled: "The Relation of the Pathology of Thyreoid Disease to the Clinical Findings" (see page 388). A discussion followed. We regret that we are not able to publish a summary of this discussion because in spite of many attempts we have been unable to secure a record of the speeches of some of the participants.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, 30 to 32, Elizabeth Street, Sydney, on May 30, 1929, DR. F. BROWN CRAIG, the President, in the chair.

Cancer Research and Treatment.

PROFESSOR D. A. WELSH read a paper on the position of cancer research work in the University of Sydney. He pointed out that he was acting in an advisory capacity to the Cancer Research Committee in connexion with the pathological problems. It was eminently desirable that the classification of malignant tumours should be properly worked out. Unfortunately his time was too fully occupied to undertake this work. He had been particularly interested in the problem of the causation of cancer. In some instances the growth undoubtedly started with local irritation and trauma. Other growths owed their origin to some obscure biological or biochemical change. He discussed this process at some length. He attributed to the endocrine or hormonic influence various changes in the cells of certain glands. It seemed to him that it would be impossible, unless much fresh knowledge were forthcoming, to prevent new growths arising from such biochemical processes. A great deal could be done, however, to prevent growths caused by local irritation and trauma. There was said to be a third form, that caused by some parasite. While this hypothesis had been put forward energetically, he was not convinced that it was true. He maintained that many of the observed facts were not reconcilable to the parasitic hypothesis.

In the next place Professor Welsh dealt with the question of the mode of spread of cancer. He spoke of the actual translation of the cancer cell to another site, remote or near, either through the lymph stream or through the blood stream. In certain conditions epithelial cells in close proximity to cancer cells became involved, not by direct spread, but as a result of the spread of the canceriferous process. He was convinced that there were grades of malignancy and that this quality was not a hard and fast property of cancer cells. It was possible to demonstrate a maximum invasive tendency and a minimum invasive tendency and many grades in between. The study of the structure of the growth was important in determining the degree of malignancy. Professor Welsh held that malignant tendency was not a quality of the function of a cell.

In the next place he turned his attention to the question of immunity to neoplasms. Artificial immunization by injecting powdered tumour mass had led to interesting results. While it was not possible to speak definitely on this matter, it seemed to him that the method was not without hope. He referred to the work of Bashford some years before on the artificial immunization of mice. Unfortunately his paper on this part of his research work had never been published.

The present scheme of cancer research comprised biochemical, biophysical and pathological research. They were breaking new ground. One point of supreme importance that was being investigated was the study of the biochemical differences between cancerous and non-cancerous tissue. They were contrasting different types of growth and paying attention to the growing cellular tissue as well as the static tissue like fibrous and cartilaginous tissue. Again it was necessary to compare tumour cells with embryonic tissue. They knew that some new growths were radio-sensitive and some radio-resistant. Certain structural types were associated with radio-sensibility and others with radio-resistance. This was obviously not due to cellularity nor to the rate of growth. They were feeling their way. The pathologist could help the radiologist in this work. In conclusion, Professor Welsh stated that every medical practitioner should have some introduction to the work and should be able to form a mental picture of what was taking place when a cancer was formed. He wished to call attention to one misconception. Many authors employed the term cancerous degeneration. Cancer meant increased vitality and renewed vigorous growth and not degeneration.

DR. H. G. CHAPMAN read a paper on the organization in cancer research and treatment (see page 390).

DR. H. M. MORAN read a paper entitled: "A Plan of Campaign Against Cancer" (see page 394).

DR. W. STEWART MCKAY regarded Dr. Moran's scheme as most stimulating, more particularly because nothing appeared to have been done in connexion with organization by the central committee. Dr. McKay suggested that it would be useful to divide the body into two regions in connexion with malignant growths, those above the collar bone and those below it. He pointed out that malignant growths of the lip and malignant disease of the breast were totally different diseases. In regard to the former, Crile had pointed out that out of 4,500 cancers of the lip and jaw distant metastases occurred in connexion in only 1%. On the other hand Lockwood had shown that in the very earliest stages of mammary carcinoma the cells escaped and metastases formed in the lymphatic channels. Dr. McKay referred in appreciative terms to the article by Dr. Julian Smith which had appeared in THE MEDICAL JOURNAL OF AUSTRALIA of May 4, 1929. In approaching the subject of prevention Dr. McKay thought that if every member of the medical profession would undertake to make a thorough examination of one chosen region of the body in every patient encountered, no matter what the condition was for which the patient sought treatment, a very material improvement would be effected in the early diagnosis of cancer and in its control. If an organized campaign of this kind were introduced, each medical practitioner should be required to enter the information gained by the examination of patients and to forward the cards to the central committee. It was part of the duties of the central committee to standardize treatment. Dr. McKay held that the medical profession should get to work at once in order that the information sought might become available to the committee. He doubted whether such a scheme would be successful if based on voluntary assistance. It was only if legislation were introduced that they could hope to do any good.

DR. RALPH WORRALL said that he could add little to the discussion. He spoke of the possible hereditary factor in the ætiology of cancer and remarked that he had known many cancer families in which several and even the majority of the members had been affected. He had known other families with many members none of whom had had malignant disease. He wished to draw attention to the unfavourable nature of bilateral ovarian tumours. The upper part of the abdomen of every patient with an ovarian growth should always be examined and the surgeon should remember that an ovarian tumour was often associated with apparent health for a considerable time. In conclusion Dr. Worrall discussed a theory of the method of action of radium which appeared to him to be plausible.

DR. H. S. STACY congratulated the three readers of the papers. He complained of the partial apathy of the profession towards the cancer problem. There were still many members of the medical profession who looked upon the treatment of malignant growths by means of radium with suspicion. Some of the results that had been observed at the clinics were so startling that it was impossible to

deny the fact that surgery was being displaced in part by radiation. Moreover, he admitted that the most energetic surgeons had always been prepared to give up performing mutilating operations if any equally satisfactory method of treatment could be offered in their place. He considered that Dr. Moran's plan was an excellent one. If it were adopted it would be possible for the radium available to be in use all the time. This was eminently desirable.

DR. J. S. PURDY said that he was interested in Dr. Moran's scheme. In the United States of America the organizers of the campaign against cancer had achieved a fair amount of success, but had done so at the expense of invoking cancerphobia in many quarters. It was absolutely essential in undertakings of this kind to avoid the production of a scare. Dr. Purdy advocated a better classification of malignant growths in the hospital and other statistics and in death certificates. He thought that the international classification of disease should be adopted so that there would be a uniformity of statistics in all countries and in all the States of Australia. An international classification had been adopted by the Federal Government. He advocated the mobilization of the whole profession in the attempt to gather fuller information concerning the incidence of malignant disease. A great deal could be achieved by circularization of *questionnaires* and a voluntary appeal to the members of the profession. Objection had been taken to the handing on of information, save under compulsion, in connexion with disease on the ground that the liberty of the subject was thereby impaired. To overcome this it might be necessary to introduce special legislation. A campaign of education should be adopted. He suggested that the holding of a cancer week would be productive of much good. The Branches of the British Medical Association should remove the bar and allow their members to mount the platform and tell the facts to the public. Dr. Purdy referred to the movement on foot in America among the insurance societies whereby policy holders were examined at regular periods at the expense of the society. This expedient was a very powerful one in the prevention of disease. Unfortunately, only two insurance societies in New South Wales had adopted it.

DR. P. L. O'HALLORAN maintained that cancer was readily curable in the early stages. As a rule, however, the patient applied too late. He thought that the onus of discovering the disease in its early stages was on the medical profession. With relatively few exceptions some medical practitioners saw the patient in the early stages. The Cancer Research Committee should take on an educational campaign and should teach the public the early signs of the disease. The public should know that either hæmorrhage from the bowel or hæmorrhoids were often the first sign of cancer of the bowel; that indigestion occurring for the first time after forty years of age was often the first sign of cancer of the stomach and that hæmaturia was often an indication of malignant disease of the kidney. Dr. O'Halloran referred to the appalling ignorance of some medical practitioners in connexion with the treatment of cancer. He spoke of many instances in which cancer of the lip had been excised locally, but no attempt had been made to remove the glands of the neck, with the result that metastases occurred in them within a couple of years. In another patient with malignant disease of the jaw, the practitioner had incised the tumour as if it were an abscess. He thought that the developments in the treatment of cancer had been so rapid that few men had been able to keep pace with them. It would be useful if the Cancer Research Committee would issue pamphlets on the progress of knowledge to the medical profession. He thought that this would be even more effective than a cancer week or than educational methods directed to the public.

DR. HOWARD BULLOCK hoped that if a cancer campaign, as suggested, were to be carried out, the organizers would be candid and admit that nothing was known of the real cause of the disease and therefore all treatment was empirical, for the knowledge of the causation of disease was the basis of treatment. He reminded his audience of the discrediting of Koch's work from one end of the scientific world to the other when he announced his discovery of the tubercle bacillus. He expressed his opinion that some such cause was bound to be found for cancer. He pointed out that there were features about the latency of cancer akin to those of the *Spirochæta pallida* and of the malarial parasite, such as recurrence after many years of freedom from trouble. The meeting had been convened to discuss the formation of an organization to combat cancer; he hoped that with the limited knowledge of the disease, surgery would still find an honourable place. He had learned from Waters at the Howard Kelly clinic at Baltimore that better results were being obtained in the treatment of cancer of the urinary bladder from Röntgen rays with little radium than with radium alone. Simmons, of the Massachusetts General Hospital, had informed him that permanent cure of cancer of the buccal mucosa was 20% more frequent after surgical than after radium treatment. At both clinics they had an almost unlimited supply of radium. He drew attention to the work of Broders at the Mayo Clinic in the classification of the types and degrees of malignancy of cancer of the buccal cavity. It would be helpful if this classification were adopted in Australia in assessing the prognosis. His own experience of the surgical treatment of cancer of the lip had been excellent. He considered that malignant disease started as a local infection and was therefore easy to diagnose when it was visible. The bugbear to the surgeon and the danger to the patient was the internal cancer which did not become manifest until late in the disease. Until some specific reaction were found, diagnosis of internal cancer in the early stages would remain impossible and it would therefore be futile, as had been suggested that evening, to make annual examination of individuals for this purpose. There was great danger in frightening people with the cancer bogy, although everyone admitted the terror of the disease. Its toll of deaths was not much greater than that of the motor car and if it were the life of the individual that they were considering and not the cause of cancer, the one would not be of much more importance than the other.

DR. BROWN CRAIG, the President, in closing the discussion agreed that the profession was in a stage of ignorance in regard to the ætiology of malignant disease. Post-graduate study was required and the newly formed post-graduate committee of the New South Wales Branch would be only too glad to cooperate with the Cancer Research Committee in starting post-graduate courses for the metropolitan and country members. He would be pleased if the eternal question as to the relative merits of surgery and radiation therapy could be cast aside once and for all. The one was complementary to the other. He reminded Professor Welsh that in his admirable communication he had offered to give them a fuller lecture demonstration at a later date. The branch would certainly accept the offer.

In his reply, Professor D. A. Welsh thanked the members for the way in which they had received his paper. He promised that the Cancer Research Committee would bear in mind all the points raised.

Dr. H. G. Chapman informed Dr. Purdy that the suggestion in connexion with the periodical examination of life insurance policy holders would have the consideration of the committee. He understood from inquiries that the life offices of Australia were not favourable to the idea. The Cancer Research Committee was endeavouring to obtain a statistical record of the incidence of malignant disease from the insurance societies. Dr. Chapman referred to the educational work of the committee and particularly to the publication of the new journal. It was proposed to send a copy of the journal free of charge to each medical practitioner in Australia for one year. In regard to the suggestion of post-graduate education, Dr. Chapman stated that they had been very gratified with the attendance at the course in 1928. It was proposed to establish courses at regular intervals and he hoped that the Third Session of the Australasian Medical Congress (British Medical Association) would be used largely for educational purposes.

Dr. H. M. Moran maintained that there was no hostility between radiologists and surgeons in connexion with the treatment of malignant disease. It was recognized that radium was not suitable for ovarian carcinoma largely on

account of the quantity of radium necessary. Cyst adenomata were not at present amenable to irradiation. As long as the surgeon and the radiologist worked together there should be no difficulty in deciding which growths were amenable to irradiation treatment and which had to be dealt with by surgical means.

A MEETING OF THE SOUTH AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Adelaide Children's Hospital on July 25, 1929. The meeting took the form of a series of clinical demonstrations.

Surgical Treatment of Advanced Pulmonary Tuberculosis by Thoracoplasty.

DR. H. W. WUNDERLY showed two patients with advanced pulmonary tuberculosis who had been treated by paravertebral thoracoplasty with great improvement. Both patients had been reported in an article earlier in the year.

The first patient's condition was of the productive type and while under treatment by artificial pneumothorax a cavity in the upper lobe had burst into the pleural cavity and a tuberculous empyema had ensued. After many aspirations, the empyema had become secondarily infected by streptococci. The empyema had been drained and a two-stage thoracoplasty performed by Dr. Leonard Lindon in September and later months of 1928. The present condition showed that the pleural cavity was obliterated and the patient had gained over 18·9 kilograms (three stone) in weight and had very little sputum in which tubercle bacilli could not be found.

The second patient had been under treatment for some time for a cavity in the left upper lobe which could not be made to collapse by an artificial pneumothorax. He had then had a profuse hæmoptysis, followed by an acute tuberculous pneumonia of the left lower lobe which had proceeded to break down rapidly, and his condition had rapidly become as grave as that of the patient just described. In June, 1928, Dr. Leonard Lindon had performed a two-stage thoracoplasty. The patient could walk four to five miles a day, had very little sputum, no pyrexia and had put on 9·5 kilograms (twenty-one pounds) in weight.

Dr. Wunderly showed X ray photographs contrasting the pre-operative and present conditions of these two patients.

Spina Bifida.

DR. E. F. WEST showed a male child, aged seven weeks, with a condition of posterior *spina bifida* over the upper sacral region. By means of an X ray photograph it was seen that there was a definite kyphosis in the lumbar region, associated with absence of the bodies of the third and fourth lumbar vertebræ. Both legs were spastic, the feet were in a condition of *talipes equino-varus* deformity, there were flexion at the knees and external rotation of the hip joint. There was also present a right inguinal hernia with undescended testicle and on the left side a congenital or intermittent hydrocele. In order to investigate the nature of the *spina bifida*, air had been injected and an X ray photograph taken. The air was seen partially to fill the cavity with a track leading into the sacrum.

Charcot's Joints.

DR. GUY LENDON showed a man, aged twenty-three, who complained of swollen knee joints of five and a half months' duration.

On examination both joints were full of fluid and moderately painful on movement. The skiagram revealed erosion of the femora at the attachment of the cruciate ligaments, a very deep groove on the outer side of each outer condyle and destruction of the tibio-fibular joints. In addition the renal efficiency was only 30% of normal, with heavy intermittent albuminuria; the blood did not react to the Wassermann test. There was no history of gonorrhœa and no abnormal nervous phenomena were elicited. He suggested a diagnosis of Charcot's joints.

Trachoma and Interstitial Keratitis.

DR. EDGAR BROWN showed a patient, aged sixteen years, who had suffered from trachoma for some years. While under treatment for this she had developed interstitial keratitis in both eyes. Treatment for trachoma had seemed to aggravate this and she had taken *hydrargyrum cum creta* pills without any benefit resulting. Treatment for trachoma had been discontinued and she had been sent to Dr. Guy Lendon for treatment with injections of "Novarsenobillon." Improvement had been immediate. The cornea of the right eye was quite clear, while in the left was to be seen the pannus due to trachoma above and below the interstitial vessels in the cornea were just visible. Apart from the injections she had had only atropine drops for the eyes and bathing with warm boracic lotion. The antisyphilitic treatment had consisted of four intravenous injections of "Novarsenobillon" and then one intramuscular injection, as no more veins were available. Since then she had had two courses of bismuth given intramuscularly, six doses of one cubic centimetre in each course.

Tuberculosis of Bones and Joints.

DR. L. O. BETTS showed four patients suffering from tuberculosis. A boy with a tuberculous hip had developed eczema of the dorsal aspect of the trunk and legs while being treated on a Jones abduction frame. He was immobilized in the prone position in a plaster bed with the leg in wide abduction. He had been in this position for two months, the eczema proving intractable.

The second patient had a tuberculous hip with a pathological dislocation. That had occurred early, before there were any destructive changes in the head of the bone or acetabulum, as shown by X rays, although there was an area of destruction in the neck of the femur. Dislocation at this stage was considered unusual. The boy was under treatment on a Jones abduction frame, a splint which Dr. Betts considered should be used early for all patients with arthritis of the hip joint. This would prevent these pathological dislocations, apart from giving adequate rest in the position of abduction.

The third patient suffered from a tuberculous spine and was under treatment on a Pugh frame and carriage. This Dr. Betts considered the most efficient splint for such conditions. It gave effective immobilization with a maximum exposure of skin for heliotherapy, combined with ease of nursing. In addition the child could be wheeled about on the carriage with the utmost ease.

Dr. Betts's last patient was a boy, aged eleven, with a tuberculous knee of the synovial type. Seven years previously he had commenced treatment. He had had a flexion deformity that had been reduced by extension and the limb had been put in plaster. Later, on being given freedom of the limb, the deformity had gradually recurred. The treatment had been repeated on at least two occasions, deformity recurring each time. The boy had been wearing a calliper splint for nearly two years and although there had been no signs of activity in the joint for eighteen months, it was considered advisable that the splint should be continued for a still longer period. The boy was shown to call attention to the necessity of support being given to tuberculous joints for a prolonged period after apparent quiescence.

Demonstration of Instruments.

Urological instruments were exhibited by Dr. J. Close and the equipment of instruments used in the Chevalier Jackson clinic for laryngoscopy and bronchoscopy were shown by Dr. E. A. Matison.

NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

Jones, Ernest Benjamin, M.B., Ch.M., 1927 (Univ. Sydney), "Pen-Y-Craig," St. Mark's Road, Randwick.

THE undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

Cameron, Donald Alastair, M.B., 1927 (Univ. Sydney), Coast Hospital, Little Bay.
Cummins, George, M.B., 1928 (Univ. Sydney), Alice Street, North Lakemba.
Eizenberg, Horace Joseph, M.B., B.S., 1927 (Univ. Sydney), Toowoomba.
Kennett, George Hedley, M.B., Ch.M., 1925 (Univ. Sydney), L.R.C.P. (London), M.R.C.S. (England), 1927, 193, Bourke Street, Goulburn.
Bridge, Grace Marion, L.M.S.S.A. (London), 1913, Milo, Wandandian, Nowra.
English, William Gerard, M.B., Ch.M., 1926 (Univ. Sydney), Kite Street, Orange.
Lawrie, Charles William, M.B., B.S., 1927 (Univ. Sydney), Braeside Hospital, Stanmore.
Segal, Reuben, M.B., B.S., 1928 (Univ. Sydney), 324, Birrell Street, Bondi.
Marolli, Giuseppe Enzo, M.D., 1901 (Univ. Pavia), Hamilton, Newcastle.
Marr, Gordon William Singer, M.B., 1901 (Univ. Sydney), Byron Hall, Macleay Street, Potts Point.
Newton, William Neild, M.B., B.S., 1927 (Univ. Sydney), Rangiora, Rosthern Avenue, Croydon.

Medical Societies.

THE NEWCASTLE HOSPITAL CLINICAL SOCIETY.

A MEETING OF THE NEWCASTLE HOSPITAL CLINICAL SOCIETY was held at the Newcastle Hospital, New South Wales, on March 7, 1929. The meeting took the form of a series of clinical demonstrations.

Herpes Zoster of the Fifth Cranial Nerve.

DR. A. C. ARNOLD showed a boy, aged six and a half years, on whose left cheek a rash had appeared on February 17, 1929, as a crop of vesicles. No pain and no irritation had been present. The rash had gradually spread and had involved eyelid, cheek and side of nose. Slight anæsthesia of the left cornea and infection of the conjunctiva had been present on February 25, 1929, when the patient was first seen. The condition was a typical *herpes zoster* of the maxillary division of the fifth cranial nerve.

Dr. Arnold said that the interest in this case was that three weeks previously the patient's sister, three and a half years of age, had had a similar rash, not seen by Dr. Arnold, but typically described by the child's mother. In the sister's case the cornea and conjunctiva had escaped, but the supraorbital branch was involved as well as the facial. The tonsils had been previously enucleated. There were no carious teeth.

Erythrœdema (Pink Disease).

Dr. Arnold also showed a male patient, aged one year and eight months, who had been admitted from the skin out-patient department, where he was brought on account of an excoriated rash on the body. This had probably been due to vermin. He had been in hospital six weeks previously with gastro-enteritis which had been cured in eighteen days. The nurse in the out-door department had noticed the redness of the hands and feet and had drawn Dr. Arnold's attention to it. On questioning the mother, it appeared that the child had been ill for two weeks. She had noticed that it was unable to sit up, had little desire for food, was very irritable and restless, especially at night and would close its eyes tightly when exposed to the light. A provisional diagnosis of erythrœdema had been made and the child admitted to hospital. On examination the condition had turned out to be typical pink disease. The muscles were entirely lacking in tone and the child lay with limbs and back in most abnormal attitudes. It was very irritable, cross and had considerable photophobia. The limbs were flaccid, the hands and feet red, cold and slightly swollen. The tongue was coated and the tonsils were enlarged; gingivitis was present and the lower incisor teeth were loose in their sockets. On physical examination nothing abnormal was found.

A blood examination had given the following results:

Erythrocytes, per cubic millimetre ..	4,810,000
Hæmoglobin value	72%
Colour index	0·75
Leucocytes, per cubic millimetre	13,200
Neutrophile cells	53%
Eosinophile cells	2%
Small lymphocytes	38%
Mononuclear cells	7%

The child has been ordered mercury vapour light baths. It was noticeable that there was very little reaction to a comparatively heavy dose of light.

The child was still under observation. A skiagram of the long bones did not disclose any "white line" of rickets.

Tuberculous Lesion of the Skin.

DR. A. B. K. WATKINS showed a male patient, aged twenty-nine years, who had had chronic pulmonary tuberculosis for eleven years. Two years previously he had complained of ulceration of the right concha. The ulcer had had undermined edges, a thin discharge and a base covered with thin granulations. The Wassermann test had yielded no reaction. A provisional diagnosis of tuberculous ulcer had been made, but a section had been reported on by Dr. Byrne as being ordinary granulation tissue with no evidence of tuberculosis. As a greenish crust had been seen in the meatus, a fungus had been suspected as a cause and this had appeared all the more likely as the ulcer had almost quite healed in two months under daily treatment with 90% alcohol. Four months later the ulcer had recurred and had perforated the conchal cartilage and had appeared behind the pinna. Treatment with large doses of potassium iodide had not produced any benefit. Seven months previously a smear had produced a pure culture of *Bacillus pyocyaneus* and another section had been reported on as ordinary granulation tissue with no epithelial proliferation, no giant cells and no caseation, though it was more cellular than before. The ulcer had been curetted and the cartilage had been found necrotic like the wash leather slough of a gumma, for three millimetres around the perforation. After healthy cartilage had been reached all round, the whole perforation had been coagulated superficially with an Oudin diathermy spark. The perforation had soon healed, leaving a conchal opening nine millimetres in diameter, with no distortion of the shape of the ear. Recently the ulceration had started on the tragus and posterior to the perforation and contraction was distorting the pinna. There was a thin area of skin with a fine crust on the side of the nose and an area of skin was reddened lateral to the left eye. A culture from the surface of the ulcer yielded *Staphylococcus aureus* only.

DR. A. C. ARNOLD thought that the ulcer on the ear was scrofulodermia in which case the pathological lesions would not be typical of tuberculosis, and that the other patches were very early lupus. In each case the mercury lamp should help.

DR. G. L. EWAN suggested that the Wassermann test be repeated.

DR. F. W. D. COLLIER suggested a vigorous antisyphilitic treatment in any case.

Dermoid Tract of the Nose.

Dr. Watkins's second patient was a child, aged eight years, who complained for one year of a pin-point sinus half way between the tip of the nose and the inferior end of the nasal bones. Two years previously a swelling had formed on the left side of the root of the nose. This had ruptured and had been covered with crusts ever since and the inferior opening had discharged. Two fine hairs just projected from the lower opening.

"Lipiodol" injection and X ray examination showed a tract patent nearly to the upper opening. A probe could also be passed the same distance. No other abnormalities were found.

Dr. Watkins discussed the mechanism of the production of a fissure from which a dermoid tract could form in this

region and illustrated his points with photographs of two cases of double nose in which the lower halves of the nose were duplicated (Mr. H. S. Souttar's and Mr. W. R. H. Stewart's cases) and with lantern slide and pictures of other nasal dermoids.

Hydatid Cyst of the Pancreas.

DR. S. S. GARDINER reported the removal of a hydatid cyst of the pancreas. This will be reported in full in a subsequent issue.

THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA.

A MEETING OF THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA was held at the University of Adelaide on May 3, 1929.

Biological Tests for Pregnancy.

DR. A. R. SOUTHWOOD raised the question of biological tests for pregnancy, with special reference to the recently reported test of Ascheim and Zondek. He said that this was founded upon the fact that the anterior pituitary lobe enlarged during pregnancy to twice its normal size, an enlargement which was taken as evidence of increased activity of that gland. The test was based upon the appearance of the hormone in the urine.

Dr. Southwood then referred to the tendency to glycosuria during pregnancy and raised the question as to whether the adrenlain circulation was increased in this condition. He asked whether the Ascheim-Zondek test could be reasonably based upon the theory of overflow of anterior pituitary secretion. He then referred to other factors which were altered during pregnancy, such as the blood cholesterol and the presence of an antibody in the blood capable of estimation by means of complement deviation tests. The blood lipoids generally were stated to be a basis of a test for this condition. Abderhalden's well known test was mentioned, together with Van Slyke's refutation of the same.

DR. R. F. MATTERS replied, dealing with the development of the test from its beginnings. He described the technique of Frank and Goldberger and cited the effect upon basal metabolism rate of thyreoid changes during pregnancy. With reference to the adrenals, he cited the effect of instillation of adrenalin into the conjunctival sac (Fraenkel) and its effect upon the pupil in pregnancy. He stated that ovarian tumour itself produced the effect of increased ovarian hormone in the blood and recounted his own investigations by means of Siddal's method.

DR. B. SWIFT stated in reference to the 96% accuracy claimed for the Ascheim-Zondek test, that unless the test was of 100% accuracy, its value would be nil. He also stated that the Berlin abattoirs by means of the use of Abderhalden's test saved 92% of pregnant cattle coming forward for slaughter.

DR. C. S. HICKS in reply to Dr. Swift pointed out that 100% accuracy was seldom obtainable in biological work and clinical experience fell considerably below any such accuracy. He mentioned the criticism originally attaching to the Wassermann test as an aid to clinical diagnosis and while stating that the importance of a test for pregnancy could never be so great as in the case of the latter test, its interest lay in the fact of its origin and the evidence brought forward by Zondek and his coworkers for hormonal control of the periodic function in woman. He cited the details of the test. One to two cubic centimetres of morning urine had been injected into five infantile mice which were then examined for typical reaction which meant hyperæmia and hypertrophy of the *theca interna* cells and a form of *corpora lutea* cells either true or atresic. As a control against the presence of ovarian hormone in the urine, a similar number of growing castrated mice had been injected with the same amount of urine. The test was active five days after the first missed period. Out of 236 human controls, 16 had suffered from severe endocrine conditions, two of these from myxœdema and one from acromegaly; the latter alone had given a weak positive response. There were also 22 with carcinomata, of which one-fifth was genital in origin. Of the remaining 198 patients one forty-seven year old woman and one man had given a weak positive response. The error computed on this basis was 4%.

Dr. Hicks further stated it was motor to the sex function and could not be demonstrated in the blood of the non-pregnant, but was demonstrable at four months' pregnancy in the blood, decidua, placenta and *corpus luteum*. Certain commercial extracts which had been examined, such as "Anteglandol" and "Antephysan," had been proved to be inactive, but according to the method of Zondek a highly active preparation was now on the German market. It was important to point out that during the first eight weeks of pregnancy the anterior pituitary lobe hormone exceeded the follicular hormone in quantity in urine, while the ratio was reversed after the seventh month.

Toxæmia of Pregnancy in Ewes.

DR. L. V. BULL stated that at this time of the year there was a considerable amount of toxæmia of pregnancy among ewes. The animals died after three days' coma. Sections of the liver which were demonstrated, showed extensive fatty change round the peripheries of the lobules. The blood sugar in a case which Dr. Bull had studied, was as low as 0·028% and large intravenous dosage with glucose had had no effect on symptoms. Five cubic centimetres of a one in a thousand adrenalin solution raised the blood sugar. It was stated by a station owner that many animals recovered after this treatment which was initiated by Dr. Bull merely to test the glycogen mobilizing power of the liver. The condition was associated with good feeding and was not found among starved animals.

DR. A. R. SOUTHWOOD stated that in Germany during the war there was a low incidence of eclampsia.

PROFESSOR PRESCOTT asked whether the animals were hand fed in Dr. Bull's cases.

Dr. Bull stated that they were.

In reply to a question Dr. Swift stated the condition was especially associated with hydramnios.

Dr. Hicks pointed out that the liver change was not the same as that found in the human condition where there was a central necrosis.

Australasian Medical Publishing Company, Limited.

ANNUAL MEETING.

THE annual meeting of the Australasian Medical Publishing Company, Limited, was held at The Printing House, Seamer Street, Glebe, on August 31, 1929.

Directors' Report.

The Chairman of Directors, Dr. T. W. Lipscomb, presented the report of the Directors as follows:

The Directors submit their report for the past year and balance sheet as at June 30, 1929, together with profit and loss account for the twelve months ended June 30, 1929.

The business of the company as general printers has continued to progress throughout the year, although, in common with other printers and publishers, the depression in the printing trade in Sydney has been seriously felt. Despite, however, the fact that the plant has not worked to its full capacity continuously, The Printing House has paid its way, with the exception of debenture interest.

The Directors at their meeting in March, 1929, regretted to have to notify the holders of debentures that the profits of the financial year ended June 30, 1928, and for the half year ended December 3, 1928, had been insufficient to allow of debenture interest being paid; and in view of the fact that the debenture holders had contributed the money which had enabled the business of general printers to be undertaken (the company having no share capital for the purchase of plant and machinery), it was recognized as

appropriate that the position of the company should be ascertained as definitely as possible and the debenture holders given the fullest available information.

For this purpose, in August, 1928, the Directors authorized an investigation of the affairs of the company by Mr. Thomas Hadley (Offner, Hadley and Company, public accountants, of Sydney, Melbourne, Adelaide and Brisbane) who specializes in the accountancy of printing establishments and whose experience extends throughout the printing industry of Australia. Mr. Hadley made a close examination of the affairs of the company and his report, dated October 19, 1928, covered the whole three years of the company's business as printers.

The report was encouraging. Mr. Hadley summed up his conclusions in the following statement:

> As I said under the heading "sales," if you give more attention to that section of your organization, I am sure the rest will look after itself. To me your problem lies with the sales. The other problems are minor.

He added:

> It is not likely that distribution of profits or even payments of interest can be made for some time yet in view of your heavy commitments, but it is unquestionable that before many years have passed with the present progress, the business will prove a profitable venture.

The Directors have to record with deep regret the fact that owing to ill health Dr. A. J. Saw and Dr. W. N. Robertson were obliged to retire from the board. The meeting is asked to elect a director in place of Dr. W. N. Robertson. The casual vacancy occurring from the retirement of Dr. Kent Hughes was filled by the appointment of Dr. R. H. Fetherson. Dr. D. D. Paton was appointed in place of Dr. Saw.

Sir H. S. Newland will retire by rotation and is eligible and offers himself for reelection.

(*Signed*) T. W. LIPSCOMB,
Chairman.

Election of Directors.

Sir Henry Newland was reelected to the Board of Directors. Dr. D. Gifford Croll was elected a Director in the place of Dr. W. N. Robertson.

Special Correspondence.

LONDON LETTER.

BY OUR SPECIAL CORRESPONDENT.

The Origin of Hospitals.

IN these days one is so apt to take everything for granted that it is sometimes interesting to stop and examine the origin and gradual evolution of our highly organized scientific institutions. Perhaps one of the most fascinating stories is that of the evolution of our modern hospitals. If, to begin with, one goes back to the root of the matter and inquires into the derivation of the word hospital we find that it springs from the Latin word *hospes*, meaning equally guest or host. The very first forms of hospitals were purely ecclesiastical and were associated particularly with bishops as is shown by their consecration vows and the institutions were pre-eminently for the refreshment of the soul, the body being taken care of rather than cured. In the first instance hospitals were primarily houses of rest for travellers, especially for pilgrims and as far as a century after the conquest of England there was much travelling about the country, particularly pilgrimages to the shrine of Saint Thomas of Canterbury, it was very necessary to have many rest houses which fulfilled the two-fold function of guest-houses and infirmary. About the end of the thirteenth century, when pilgrimages were on the decline, vagrancy became an ever-increasing problem and there was a growing tendency to discriminate among the applicants at the hospitals which gradually provided more beds for chronic invalids than for casual comers. In 1414 a petition and statute especially named the assistance of women in child-birth as one of the main aims of charity and it is recorded that Saint Bartholomew's Hospital in London undertook this work. It is curious to note that in those days provision was made at the hospital that if the parent died the child should be maintained until the age of seven and in 1437 special privileges were granted to the hospitals in this connexion.

It is difficult to realize that from these early efforts have sprung the vast modern hospitals to which we are so accustomed, occupied solely with the health of the people and equipped to deal with all branches of science connected, however remotely, with the healing of disease.

Membership of the Royal College of Physicians.

Courses of instruction for the membership of the Royal College of Physicians of London examination have been held once or twice annually by certain London hospitals for some considerable time and have proved very popular and helpful. They generally occupy the greater part of each day for a period of six weeks. Early this year a post-graduate pointed out to the Fellowship of Medicine and Post-Graduate Medical Association (1, Wimpole Street, London, W.1) the uselessness of such courses to the average general practitioner, who is immersed in his professional work during the hours the course is being held. It was suggested that the Fellowship of Medicine should endeavour to arrange a course of instruction suitable for the examination, which would take place at some hour that would permit the busy doctor not only to finish his evening surgery, but also to have a meal. A course of sixteen lectures was finally arranged and is now in progress, taking place on Tuesday and Friday evenings at 8.30 p.m.; that the experiment was fully justified, is shown by the fact that some thirty doctors are attending. A fee of six guineas is charged for the entire course, but practitioners may attend isolated lectures if they choose at a fee of ten shillings and sixpence per lecture. It is now decided that a similar series will be arranged for the autumn months (probably in October and November) in preparation for the January examination and May and June, 1930, for the July examination. It is thought that the details of the present course may appeal to some of the journal's Australian readers who are contemplating a visit to the Old Country in the near future and will be interested to see the instruction that will be available for them.

DR. B. T. PARSONS-SMITH: "The Assessment of Valvular Heart Disease," "The Treatment of Cardiac Failure."

DR. A. KNYVETT GORDON: "The Clinical Significance of the Blood Film."

DR. BERNARD MYERS: "Purpura," "The Differential Diagnosis of Splenomegaly with the Treatment of the Diseases Concerned."

DR. H. E. ARCHER: "Tests of Hepatic and Pancreatic Functions."

DR. F. M. R. WALSHE: "Disorders of Movement in Nervous Diseases: (i) Hemiplegia, Paraplegia, (ii) Tremor and Rigidity. Involuntary Movements."

PROFESSOR HUGH MACLEAN: "Nephritis with Special Reference to Cardio-vascular Involvement," "Recent Views on Diabetes and 'Insulin'."

DR. L. S. T. BURRELL: "Modern Methods of Diagnosis and Treatment in Pulmonary Tuberculosis," "Bronchiectasis, Abscess of Lung and Empyema."

DR. GARDINER HILL: "Diseases of the Thyreoid and Pituitary Glands."

DR. T. IZOD BENNETT: "Diseases of the Stomach," "Diseases of the Pancreas."

DR. A. F. TREDGOLD: "Mental Deficiency."

Post-Graduate Courses.

The Fellowship of Medicine is now engaged in arranging its programme of work for 1929-1930. A list of special courses for 1930 will be published in October and will be sent to any doctor on request.

It is also proposed to arrange a series of formal lectures on common ailments or complaints from October to December. These lectures are free to the medical profession and are delivered at 5 o'clock on Monday afternoons. There will probably be a series of lecture-demonstrations at the Wellcome Museum of Medical Science, Gordon Street, W.C.1, held under the auspices of the Fellowship of Medicine. These likewise will be free. In addition to the lectures, the Fellowship of Medicine regularly arranges a programme of clinical demonstrations in medicine, surgery and the specialties at its associated hospitals. These demonstrations are open to the medical profession without fee and are held throughout the entire year with the exception of the months of August and September.

Correspondence.

TRANSACTIONS OF CONGRESS.

SIR: The letter of "Congress" in the issue of August 24, 1929, regarding the decision to issue the Transactions of the coming Congress only to members, has prompted me, as one of those country practitioners who for various reasons will be unable to attend, to state my views.

If the authorities concerned could see their way clear to make copies available for non-members, I for one should be only too pleased to pay for a copy. Also, I have no doubt that there are numerous other members of the British Medical Association, similarly situated to myself, who could derive much benefit from the knowledge to be obtained from the Transactions.

Yours, etc.,

SELWYN B. SUTTON.

SIR: Please allow me to commend "Congress" for the unselfish spirit shown in his letter in your issue of the 24th ultimo. As one who was unable to attend the congress this year, may I say that I read with regret and surprise that it had been decided not to publish in the journal the Transactions of the Congress. Not to do so is akin to playing Hamlet and leaving Hamlet out. I understood, Sir, that the main object of the journal is to provide all Australian members of the British Medical Association with information or papers on medical subjects. By not publishing the proceedings of congress not only is it ignored, but also the great body of the profession is deprived of what some of us at least believe would be of value to us. I am led to believe that the decision has been arrived at on the score of economy. If the fees received from members of the congress be used, after the many deductions to pay for the cost of printing the Transactions and the postage thereon, the extra expense in running off additional copies once the type is set up is comparatively trifling and if the fees do not pay for the cost then I presume the additional expenditure will be borne by the journal or Association as a whole and if so each member is then entitled to a copy.

Hoping the proposed retrograde step will not be followed,

Yours, etc.,

JAS. BOOTH.

North Melbourne,
September 7, 1929.

PLUMBISM.

SIR: It is a truism that public taste in either literature or art is very difficult to foretell. A bad novel may have had an immense vogue, whilst a masterpiece received little notice. Until the present moment the possibility that medical taste fell into exactly the same category, had not occurred to me. When privileged to hear the papers read before the Branch by Dr. Croll and Dr. Nye on the subject of lead poisoning in Queensland, I predicted that the matter was of such national importance, every medical man would give facilities for research on his cases, the profession in general and the British Medical Association in particular would force the question on the public until finally State and Federal enactments, strongly enforced, would make plumbism a thing of the past.

The correlation of facts concerning all houses, painted verandas, thumb-sucking, town incidence, relative State death rates were so remarkable, no other solution but that lead was the culprit seemed possible. The evidence was irrefutable and the most difficult chapter on this important subject had been brilliantly written. Subsequent events have, however, proved that my prophecies have been wrong on every score. Our profession, except in a few instances, did not hasten to give facilities for research, the British Medical Association listened attentively to the papers and, though it promised another night for discussion, this has not materialized. THE MEDICAL JOURNAL OF AUSTRALIA has not set its seal of approbation by the medium of a leading article. As for the daily press, a mere quotation from our journal was made in a back page. On the following day the same space was filled by statistics showing the longevity of Queenslanders. The research has apparently sunk into oblivion.

Whilst there is always need for caution and due deliberation, it is unthinkable that long delay can be permitted by our profession. The widespread nature of the disease, the appalling waste in good human material, the misery which is entailed in seeing a young family die off as it reaches early manhood and womanhood, are all so apparent. Personal experience has convinced me that the statements made by Dr. Croll and Dr. Nye are underestimations rather than over-estimations. Not long ago we were induced to subscribe to the Cancer Research Fund, an object somewhat like a gamble in oil shares, promising much or nothing. By comparison a nephritis fund would be a gilt-edged security and within a year it would be possible to avoid almost all new cases of lead nephritis. If, knowing this, we hold our hand, we deserve the obloquy of the next generation. It is terrible to consider that healthy babies of today will in the course of the next few months become so impregnated with a metallic substance as to insidiously poison them through life. Can we refrain from making that public clamour which will forever banish lead paint from their possible contact? As practical measures it is suggested further publicity by our own journal which could give a *résumé* to the lay press, action by the British Medical Association to induce the Federal and State Governments to grant a commission, encouragement for Dr. Croll, Dr. Nye and others to do more work on the subject, inauguration of a publicity campaign on the lines of that for cancer research.

Yours, etc.,

"CLINICIAN."

Brisbane.
August 26, 1929.

THE PREVALENCE OF SYPHILIS.

SIR: Your leading article in the issue of July 27, 1929, entitled "The Prevention of the Spread of Syphilis," appears to me to convey a wrong idea as to the incidence of this disease at the present time. It would appear that syphilis is still the scourge that it was twenty-nine years ago. I consider that in Melbourne (and I believe in other large cities) there are not more than 20% of the cases of primary syphilis that there were twenty years ago. I have looked up the records of the venereal clinic of the Melbourne Hospital and find the record of primary and early secondary cases of syphilis presenting themselves during the past eighteen months as follows: January 1, 1928, to June 30, 1928, fifteen cases; July 1, 1928, to

December 31, 1928, fourteen cases; January 1, 1929, to June 30, 1929, ten cases.

Anyone who was acquainted with the out-patient department of the Melbourne Hospital twenty years ago, before the special clinic was instituted, must admit to the great decrease in the number of primary cases of syphilis. A similar, if not greater, decrease is noticeable in private practice. The reason for this improved position is, I think, that with intravenous arsenical treatment the patient is very rapidly rendered non-infective; whereas, under the old *régime* an individual was infective for one year, two years or even longer. With regard to gonorrhœa, however, there does not appear to be any lessening of the incidence.

Yours, etc.,

ARTHUR MORRIS, M.B., B.S. (Melb.),
Officer in charge of the Venereal Diseases Clinic,
The Melbourne Hospital.

Melbourne,
August 9, 1929.

MALARIAL THERAPY IN AUSTRALIA.

SIR: As the papers read at the Congress do not give a complete historical sketch of the institution of malarial therapy in Australia, I would be glad if you could find room in your columns for a short description.

In 1923 Dr. Latham, Pathologist of the Mental Hospitals Department, inspired by Sir John MacPherson, the then Professor of Psychiatry, made an attempt at inoculation at Callan Park. This, unfortunately, did not succeed.

In 1926 four cases were successfully inoculated at Sunbury, Victoria, but unfortunately the strain died out. Nothing further was done until Dr. Latham after considerable trouble succeeded in inoculating patients in New South Wales Mental Hospitals and the treatment has been kept going ever since. During this time Dr. Bentley, the Inspector-General of Mental Hospitals in Western Australia, called with a view to seeing if the method could be started in Western Australia. After consultation with Dr. Latham it was decided to try the experiment of sending the infected blood in a "Thermos" flask on ice to Victoria. If successful in Victoria, it was to be transmitted in the same way to South Australia and from South Australia to Western Australia; it was to be sent by an aeroplane. The New South Wales Mental Hospital succeeded in successfully transmitting the blood to the Victorian Mental Hospitals and they in turn were able to make a successful transmission to South Australia and thence to Western Australia.

It will thus be seen that the energies of the pathologist of the Mental Hospitals Department were responsible for the establishment of this means of treatment throughout the four other States of the Commonwealth.

An offer was made to Queensland to transmit and some blood is now being taken to Queensland from the strain which has been established in New South Wales.

I would be glad if you would insert this.

Yours, etc.,

C. A. HOGG,
Inspector-General of Mental Hospitals.

9, Richmond Terrace,
Domain, Sydney.
September 9, 1929.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A MEETING OF THE SENATE OF THE UNIVERSITY OF SYDNEY was held on August 12, 1929.

The Honorary Treasurer of the Dr. H. J. Clayton Memorial Fund forwarded a cheque for £1,044 for the establishment of the Dr. Harry J. Clayton Memorial, the income from the capital sum to be devoted to the provision of an annual prize to be awarded to a student of the final degree examination for proficiency in medicine and clinical medicine. The Senate resolved to extend grateful thanks to the subscribers for the foundation and to request the Faculty of Medicine to draw up conditions for the award of the prize.

The use of the University buildings and grounds was granted for the afternoon of Friday, September 6, 1929, for the purpose of holding a garden party in connexion with the forthcoming Australasian Medical Congress (British Medical Association).

The Perpetual Trustee Company Limtied asked if the Senate would establish a Frederick Harrison Quaife Memorial Fund in memory of the late Dr. F. H. Quaife (who practised his profession for many years at Woollahra) by accepting a gift of £1,500 from Dr. C. H. Quaife (a son of the late Dr. F. H. Quaife), the income therefrom to be used in the purchase of books and instruments for the Department of Physics. It was resolved to inform the Company that the Senate would gladly accept the gift and apply the income derived from same in accordance with the wishes of the donor.

Mr. V. H. Treatt, B.A., B.C.L., was appointed to give a course of six lectures on Criminal Law in the Department of Anthropology during September.

Dr. J. H. L. Cumpston, C.M.G. (Federal Director-General of Health) and Mr. A. Ramsay Moon, B.A., M.C.E., were appointed Lecturers under the University Extension Board.

THE UNIVERSITY OF MELBOURNE.

Mann Presentation Fund.

AT the end of this year Mr. W. Mann is retiring from the staff of the Zoology School of the University of Melbourne after forty-one years' service. It is proposed to mark his resignation by some suitable gift in recognition of the services which he has rendered to this school almost from its inception to the present day. Mr. Mann has been known to many hundreds of medical students and at later years to so many of their sons that it is felt that many would like to have a share in the presentation.

A subscription of five or ten shillings is suggested, but larger sums will be gratefully received. Contributions may be sent to Dr. G. Buchanan, Zoology Department, the University of Melbourne, Carlton, N.3, Victoria. The subscriptions will be acknowledged in THE MEDICAL JOURNAL OF AUSTRALIA.

Obituary.

JAMES RAMSAY WEBB.

WE regret to announce the death of Dr. James Ramsay Webb which occurred at Hawthorn, Victoria, on September 4, 1929.

HUGH BUSBY.

WE regret to announce the death of Dr. Hugh Busby which occurred at Bathurst, New South Wales, on September 9, 1929.

A CORRECTION.

OUR attention has been drawn to an error in the obituary notice of the late George Adlington Syme which was published in THE MEDICAL JOURNAL OF AUSTRALIA of May 25, 1929, on page 713. It was stated that in 1903 the Medical Society of Victoria had a membership of 300, while the members of the Victorian Branch of the British Medical

Association numbered only twenty. These figures were taken from an article on the history of medical congresses in Australasia published in this journal in 1920. It appears that in the Transactions of the sixth session of the Intercolonial Medical Congress held in Hobart in 1902, Dr. E. Hinchcliffe, of Bendigo, stated that when he was President of the Medical Society of Victoria in 1891 that society had a membership of 300, while the Victorian Branch had only twenty members. Reference to the records of the Victorian Branch of the British Medical Association revealed that in 1903 there were 271 members of the Medical Society of Victoria and 167 members of the Victorian Branch of the British Medical Association.

Books Received.

THE ANATOMY OF THE FEMALE PELVIS: DESCRIPTIVE AND APPLIED, by F. A. Maguire, D.S.O., M.D., Ch.M. (Sydney), F.R.C.S. (England), F.C.S.A.; Second Edition; 1929. Sydney: Angus and Robertson, Limited. Crown 8vo., pp. 119. Price: 7s. 6d. net.

TREATMENT OF VARICOSE VEINS BY INJECTION, by Victor M. Coppleson, M.B., Ch.M., F.R.C.S., F.C.S.A.; 1929. Australia: Cornstalk Publishing Company; Sydney: Angus and Robertson, Limited. Crown 8vo., pp. 66. Price: 5s. net.

AIDS TO ZOOLOGY, by Harry Lister, M.Sc., F.Z.S.; 1929. London: Baillière, Tindall and Cox. Foolscap 8vo., pp. 221. Price: 3s. 6d. net.

BAILLIÈRE'S SYNTHETIC ANATOMY, by J. E. Cheesman; Part V, The Leg; Part VI, The Foot; 1929. London: Baillière, Tindall and Cox. Crown 4to. Price: 3s. per part.

STONE AND CALCULOUS DISEASE OF THE URINARY ORGANS, by J. Swift Joly, M.D. (Dublin), F.R.C.S. (England); 1929. London: William Heinemann (Medical Books) Limited. Crown 4to., pp. 586, with illustrations. Price: 45s. net.

SYNOPSIS OF MIDWIFERY AND GYNÆCOLOGY, by Aleck W. Bourne, B.A., M.B., B.Ch. (Cambridge), F.R.C.S. (England); Fourth Edition; 1929. Bristol: John Wright and Sons, Limited. Crown 8vo., pp. 441, with illustrations. Price: 15s. net.

GYNECOLOGY: A TEXT-BOOK OF THE DISEASES OF WOMEN, by Lynn Lyle Fulkerson, A.B., M.D., F.A.C.S.; 1929. Philadelphia: P. Blakiston's Son and Company. Royal 8vo., pp. 850, with illustrations. Price: $9.00 net.

THE TREATMENT OF FRACTURES, by Lorenz Böhler, M.D.; Authorized English Translation by M. E. Steinberg, M.S., M.D.; 1929. Vienna: Wilhelm Maudrich. Crown 4to., pp. 193, with illustrations. Price: $5.00 net.

Diary for the Month.

SEPT. 24.—New South Wales Branch, B.M.A.: Medical Politics Committee.
SEPT. 24.—Illawarra Suburbs Medical Association, New South Wales.
SEPT. 25.—Victorian Branch, B.M.A.: Council.
SEPT. 26.—South Australian Branch, B.M.A.: Branch.
SEPT. 26.—New South Wales Branch, B.M.A.: Branch; Election of Members to Federal Committee.
SEPT. 27.—Queensland Branch, B.M.A.: Council.
OCT. 1.—New South Wales Branch, B.M.A.: Council.
OCT. 1.—Tasmanian Branch, B.M.A.: Council.
OCT. 1.—Eye, Ear, Nose and Throat Section, South Australian Branch, B.M.A.
OCT. 2.—Victorian Branch, B.M.A.: Branch.
OCT. 2.—Western Australian Branch, B.M.A.: Council.
OCT. 3.—South Australian Branch, B.M.A.: Council.
OCT. 4.—Queensland Branch, B.M.A.: Branch.
OCT. 8.—Tasmanian Branch, B.M.A.: Branch.
OCT. 8.—New South Wales Branch, B.M.A.: Ethics Committee.
OCT. 9.—Central Northern Medical Association, New South Wales.
OCT. 10.—Victorian Branch, B.M.A.: Council.
OCT. 10.—New South Wales Branch, B.M.A.: Clinical Meeting.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xx.

WESTERN SUBURBS DISTRICT HOSPITAL, CROYDON, NEW SOUTH WALES: Junior Resident Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 21, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company, Limited. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Stannary Hills Hospital. Toowoomba Friendly Societies Medical Institute.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Contract Practice Appointments in South Australia. Booleroo Centre Medical Club.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Medical practitioners are requested not to apply for appointments to positions at the Hobart General Hospital, Tasmania, without first having communicated with the Editor of THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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